

A Dictionary of
ASSYRIAN BOTANY

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PREFACE

It is now eight years since my husband died, leaving this, his last work, almost ready for publication. The interval is long, but that is due to the war and the conditions which followed it. Indeed, publication is only now made possible by the efforts of those who have given to it time which I know could ill be spared, and to the generous grants towards the cost of production given by the following societies: The British Academy, under the auspices of which the work finally appears; the British School of Archæology in Iraq (Gertrude Bell Memorial); the Royal Asiatic Society; the Royal Society; and Merton College, Oxford. My warmest thanks are due to them all, and also to Mr. D. J. Wiseman, who has helped in the correction of the proofs, and has borne most of the burden of compiling the indices, which are an essential part of the book. But most of all am I indebted to Mr. C. J. Gadd, the Keeper of the Egyptian and Assyrian Department of the British Museum, but for whose zealous help and unflagging care the book could not have appeared. He has edited most carefully the whole of the manuscript, thus making it possible for my husband's ardent wish (to have any unfinished work published), to be fulfilled. I know that there is no one to whom the author would have owed this great debt of gratitude more gladly than to his old friend and colleague. I should like to add a personal note of gratitude to Mr. Gadd for all his work and kindness in bringing the book into being.

BARBARA CAMPBELL THOMPSON.

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INTRODUCTORY NOTE

The method used in this Dictionary for rehearsing and identifying the names of plants known to the Assyrians is, first, to quote the passages where the respective words occur in the bilingual or explanatory botanical lists, and then to seek the identity of the plant not only from the data of these lists but by the aid of other cuneiform texts, principally the medical prescriptions and magical formulæ. Philological evidence is then adduced, and often ancient, mediæval, or modern science and practices in the Oriental lands are compared. This method has already been made familiar by earlier works ¹ from the same hand.

The author of this book left a number of sheets containing various portions of material for writing what he doubtless meant to be a full Introduction after the manner of his other *Dictionary*. As well as the Introduction there was to be a list of the plant-names according to the order in which they are placed by the botanical texts, and a table indicating the Kuyunjik tablets and other original authorities which attest them; also a similar list and table for the plants in the so-called *Vade Mecum*. One or two special transcripts were probably not designed for publication. The material for the Introduction is too scanty and incidental to give any idea of what the author intended to be its scope, while the tables are incomplete and do not make sufficiently clear how they were to be arranged. The following note, based upon the aforesaid manuscript, is confined to what seemed the most important subject, viz. the cuneiform texts upon which this study is based.

The botanical lists are first to be considered, and the following are quoted throughout:—

Cuneiform Texts . . . in the British Museum (abbr. *CT.*), part XIV, pll. 10, 18 ff., and part XXXVII, pll. 28-32 (tablet B.M. no. 100860). The reference "*Pl.*" alone means Plate in *CT.* xiv, as the principal authority.

L. Matouš, *Die lexikalischen Tafelserien der Babylonier und Assyrier in den Berliner Museen* (abbr. *LTBA.*), I. *Gegenstandslisten*, nos. 88, 90.

The Berlin tablet *VAT* 9000.²

T. J. Meek, in *Revue d'Assyriologie*, xvii, 181 (tablet Sm. 1701).

Two classes of texts may be distinguished, (A) the plant-lists proper, i.e. those which consist of double columns, the second (right-hand) one of which contains equivalents or definitions of the plant-names written in the first (left-hand) column, and (B) the lists to which the

¹ *The Assyrian Herbal*, especially Introduction, §§ 2, 4, 5, 6, *A Dictionary of Assyrian Chemistry and Geology*, Introduction, p. xvi ff.

² Believed to be unpublished; the author's knowledge of it was apparently obtained from a copy made by Dr. H. Pick and quoted by permission of the late Professor H. Ebelolf. What little else can be said concerning this text may be gathered from notes in *JRAS.* 1934, 781, *DACG.* p. 227, and *AJO.* xiii, 324, n. 3.

author gave the name of *Vade Mecum* (*VM.*), the essential mark of which is that in the right-hand column is always a phrase beginning with the preposition *ina*.¹

As is well known, it was the practice of the Assyrian scribes to give a title to each work which they copied for the Royal Library at Nineveh, which title usually consisted of the first few words of the composition. When the text was of such length as to occupy more than one tablet these were numbered consecutively as tablets of the work so named. The plant-lists proper belonged, at least in part, to a series of tablets called, from its first line, ^UURU-AN-NA : *šam*mal-ta-kal. This is attested by several fragmentary colophons. The only tablet clearly numbered is said to be *VAT.* 9000, which is the second of the series. K. 267 (*CT.* xiv, 22) may belong to the first, but this is not certain. K. 4345 (*ibid.*, pl. 28) is part of the second,² and there are two fragments of "extract"-tablets (*nishu*), namely S. 547 (*ibid.*, pl. 26) which is from the tenth extract, and K. 4373 (pl. 9) from the twelfth.³ In each of these four places of *CT.* xiv there are remains of a long descriptive colophon⁴ appended to this work by order of Ashurbanipal himself. The text remains incomplete and the arrangement of the fragments is not certain, but its contents are interesting:—

X-u nis-ku [or, *ṭuppu* X^{NAM}] ^UURU-AN-NA : *šam*mal-ta-kal
 [. *ša(?)*]-a-ti u EME-BÚR^{MES}
ša ul-tu ul-la ša-ra-a la šab-tu
šamme^{H1A} *gab-ri e e šamme*^{H1A} *ina lib-bi sa(?)*-[*di-ri ?*]
*la i-šu-[ú s]*a-di-ru
m.a. *aššur-ban-apli šar*
šamme^{H1A} *gab-ri e- ?*
ù šamme^{H1A} *ša a-di*
ul-tu lib-bi
rēš ṭuppani^{MES} *labiruti*^{MES}
kima maḥ-rim-ma sa-dir-šu-nu
ù ša ^UGAL : *šam*
^UE-MU-BÚR : *šam*
^UHA-RA-AM-BI : *šam* *ha-am-b[a-qu]-qu*
ù a-di MÚD-UR-MAH : me^{MES} *ša lib-bi isbi-ni*
ina sa-di-ri šum-šu-nu ul im (var. *am*)-*bi-ma*⁵
ina muḥḥi ṭuppani^{MES} *u-še-li*

¹ *JRAS.* 1934, 771 ff. and, on the distinction of the two kinds of text, see *AH.* *Introd.* §6.

² In *AfO.* xiii, 324, n. 3, Weidner reckons also K. 8846 + Rm. 316 (*CT.* xiv, pl. 31) and 82-5-22, 576 (pl. 40) to the second Tablet of this series, because of duplicate lines in them and in *VAT.* 9000. The author has noticed these and other duplicates at several places in the text, but it is not clear whether he drew a similar conclusion (see also *AH.* *Introd.* xxv and xxvii). It should be noticed that the name of the series (according to K. 267, re-examined, and as the author read in *AH.* 199 as well as here, although he was inconsistent in *DAG.* 227) is ^UURU-AN-NA not ^UZU-AN-NA; this is another instance of the ambiguity which Weidner has himself observed in *AfO.* xiv, 340, n. 3.

³ K. 4373 begins at *LTBA.* no. 88, col. 2, 79, where it is preceded by a section (col. 2, 40-78) devoted to minerals. Before this section all the text is of the *VM.* type, and this may be the third tablet of the ^UURU-AN-NA series (with which the author believed that the series ended).

⁴ The colophon of *VAT.* 9000, an Ashur tablet, is said to be different.

⁵ *CT.* xiv, 9 reads *-is* and this seems to stand undeniably in the original K. 4373 (collated), but it must be a scribal error.

*a-me-ru a-a iṭ-pil ki-i šá^a nabu iddinu-šu lipuš^{us} (var. li-pu-uš)
 é-gal^m aššur-ban-apli šar kiššati šar^{mat} aššur
 ša a-na^a aššur u^a nin-lil tak-lu,
 eṭellut-ka la mahrat^a mu-dug-ga-sa₁-a¹*

nth excerpt (or, nth tablet] of ^úURU-AN-NA : ^{šam}mal-ta-kal
 lists (?)² and glosses (?)³ which from of old had
 not taken⁴, plants copied from (?)
 plants (which) had not in the sections (?)⁵
 sections (?) : Ashur-bani-pal king [of Assyria,
 altered this (?), and] plants copied from (?) and
 plants which including from out of
 the chief of the old tablets as formerly their sections (?),
 and of (the series) ^úGAL : ^{šam} , ^úE-MU-BUR :
^{šam} , ^úHA-RA-AM-BI ; ^{šam}ha-am-ba-qu-qu,⁶ and
 including MÚD-UR-MAḤ : me^{mes} šá lib-bi^{ts} bi-ni⁷ : in the sections their
 names he (var. "I") did not (only) rehearse (but) caused them to be
 registered upon tablets. Let him who sees them not mishandle⁸ them,
 (but) do as the god Nabu has granted him.⁹ Palace of Ashur-bani-pal,
 king of all, king of Assyria, who trusts in Ashur and Ninlil : thy virtue is
 unrivalled, O Muduggasâ.

The most interesting fact obtained from this colophon is that the
 learned monarch claims to have compiled his dictionary of plants from
 at least four pre-existing works of which he quotes the titles, i.e. the
 first lines, and he seems to complain that these sources were wanting in
 logical order, and failed to give proper explanations of difficult names,
 both of which defects he corrected as the texts were read out to him.
 Even without this information it would be natural to suppose that
^úURU-AN-NA : ^{šam}mal-ta-kal was only one among other series (or sub-
 series) represented in our sources, for there is no visible explanation why
 a work on botany should begin with the *maltakal* rather than any other
 particular plant. And in fact Rm. ii, 41 (*CT.* xiv, pl. 40) proves that there
 was a tablet beginning, as one would expect the whole series to begin
 logically, with the simple ^ú : ^{šam}mu. Unfortunately, the significant
 part of the colophon to this has disappeared. If ^úURU-AN-NA : ^{šam}mal-ta-
 kal was a new series formed by Ashur-bani-pal's editorial labours, we
 can only say that his reason for beginning it with that particular plant
 remains obscure, since it cannot be an Assyrian sub-division corre-
 sponding with Section II of the present work (Alkalis and Soapworts),
 for plants of very different kinds appear in it.

¹ Another name of the god Nabu, patron of learning.

² See last on this technical word of the schools A. Ungnad in *Afo.* xiv, 273.

³ "Solutions of tongues," that is, what are now called syllabaries. "Tongues" used partly in the Aristotelian sense, *Poetics*, 1457^b, 3-6 ; see also A. Oppenheim in *Afo.* xii, 238, n. 11.

⁴ *ša-ra-a*, uncertain, not very probably connected with צור, "bind," by the author in a medical passage, *PRSM.* xvii, p. 5, n. 3.

⁵ *sadiru* occurs (reckoning probable restorations) four times in this colophon. This seems to be the likeliest meaning, as another term of the schools : see *ZA.* N.F. ix, 26.

⁶ See p. 79.

⁷ "Lion's blood : the sap within the tamarisk" : see p. 281.

⁸ For *tapalu* see *MAOG.* xi, 46, and xii, 2, p. 32.

⁹ That is, peruse or copy them to the best of his ability.

As touching the other kind of plant-lists, the so-called *Vale Mecum*, there is little to add to the author's published accounts. He discovered only that the *VM.*, though apparently based upon the contents and order of the *URU-AN-NA* series, does not always adhere to the order of this, and omits various plants there included, because they are not, by their nature, adapted for the uses expressed by the *ina* phrase which is characteristic of the *VM.*

For the Assyrian medical texts the author's own publications should be consulted, especially the preface to his *Assyrian Medical Texts*, the bibliography of his articles in which translations of these texts were printed (see *JRAS.* 1937, p. 431), and his *Dictionary of Assyrian Chemistry and Geology*. Publications of similar material by other scholars are frequently cited in the succeeding pages. The arrangement of medical texts in series by the Assyrian scribes is a subject which has not yet been sufficiently investigated.

Reference to magical and miscellaneous cuneiform texts are made in the course of the work, and need no general remark.

Throughout the following pages there will be found many hundreds of references, especially to passages in published cuneiform texts, but also to the multifarious authorities which must be adduced in every book of this kind. There is evidence in the author's manuscript that he had conscientiously verified almost every one of these references and marked them as correct; and wherever it has been necessary to turn again to the place quoted it has been found almost invariably that the reference was true. But it should be expressly stated that, although as much care as possible has been taken to see that the printer correctly reproduced the manuscript references, the formidable task of re-verifying these could not be undertaken. While there is good reason to believe, therefore, that a high degree of accuracy in reference will be found to prevail, it must be expected that human fallibility will sometimes have been betrayed into error among this multitude of details, and apology must be offered in advance if any reader thinks that he ought to have been given the guarantee of a complete revision. But it is hoped that the achievement of correctness will be found so high as to make this requirement seem as needless as it is impracticable.

A mention must be added of the many words quoted for comparison from other languages than Akkadian and Sumerian, in the great majority of instances from the other Semitic languages. Since this Dictionary was designed to be useful to a wider circle than Semitic philologists these words were mostly given by the author in transcription, but without complete consistency either in excluding the original character or in method of transcription. The editor of these pages has endeavoured to secure more uniformity in both of these respects, and desires to express here his great obligation to Dr. A. S. Fulton and to Mr. C. Moss, of the Department of Oriental Printed Books and Manuscripts in the British Museum, who most kindly and diligently revised with him the transcriptions of words in Arabic and in Hebrew and Aramaic respectively. If errors and inconsistencies still exist they must be ascribed to the inadvertence of the editor.

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ABBREVIATIONS

†	Indicates that this is not the only drug in the prescription, others being employed with it.
A.	W. Ainsworth, <i>Researches in Assyria, Babylonia, and Chaldaea</i> .
ABL.	R. F. Harper, <i>Assyrian and Babylonian Letters</i> .
AD.	C. M. Doughty, <i>Arabia Deserta</i> .
ADD.	C. H. W. Johns, <i>Assyrian Deeds and Documents</i> .
AF.	H. Zimmern, <i>Akkadische Fremdwörter</i> .
Afo.	<i>Archiv für Orientforschung</i> , ed. E. F. Weidner.
AH.	R. Campbell Thompson, <i>The Assyrian Herbal</i> .
AJSL.	<i>American Journal of Semitic Languages</i> .
AKA.	Budge and King, <i>Annals of the Kings of Assyria</i> .
AM.	R. Campbell Thompson, <i>Assyrian Medical Texts</i> .
Anp.	Ashurnasirpal.
Arch.	<i>Archaeologia</i> .
As(hur)b.	Ashurbanipal.
AT.	T. G. Pinches, <i>The Amherst Tablets</i> .
BA.	<i>Beiträge zur Assyriologie</i> .
Bab.	<i>Babyloniaca</i> , ed. C. Virolleaud.
Bab.-Ass.	B. Meissner, <i>Babylonien und Assyrien</i> .
Bab. Mag.	L. W. King, <i>Babylonian Magic and Sorcery</i> .
BAG.	C. Bezold, <i>Babylonisch-Assyrisches Glossar</i> .
BBR.	H. Zimmern, <i>Beiträge zur Kenntniss der babylonischen Religion</i> .
BE.	<i>The Babylonian Expedition of the University of Pennsylvania</i> .
Beih.	E. E. Herzfeld, <i>Beihefte zur O.L.Z.</i> , II.
BFO.	E. Boissier, <i>Flora orientalis</i> .
BMI.	E. J. Waring, <i>Bazaar Medicines of India</i> .
BMM.	R. N. Khory, <i>Bombay Materia Medica</i> .
BMP.	R. Bentley and H. Trimen, <i>Medicinal Plants</i> .
Br.	R. Brünnow, <i>Classified List of Cuneiform Ideographs</i> .
Brock.	C. Brockelmann, <i>Lexicon Syriacum</i> .
BRP:	A. T. Clay, <i>Babylonian Records in the Library of J. Pierpont Morgan</i> , IV.
Camb.	J. N. Strassmaier, <i>Die Inschriften von Cambyses</i> .
CEN.	R. C. Thompson and R. W. Hutchinson, <i>A Century of Excavations at Nineveh</i> .
CPI.	G. Watt, <i>Commercial Products of India</i> .
CT.	<i>Cuneiform Texts from Babylonian tablets, etc., in the British Museum</i> .
Cyr(us)	J. N. Strassmaier, <i>Die Inschriften von Cyrus</i> .
D.	A. Deimel, <i>Šumerisches Lexikon</i> .
DA.	A. Boissier, <i>Documents assyriens relatifs aux présages</i> .
DACG.	R. Campbell Thompson, <i>Dictionary of Assyrian Chemistry and Geology</i> .
DB.	<i>Dictionary of the Bible</i> (a) Smith; (b) Hastings.
Devils	R. Campbell Thompson, <i>Devils and Evil Spirits of Babylonia</i> .
Diosc.	<i>Dioscorides</i> , ed. Sprengel.
DM.	R. Quain, <i>Dictionary of Medicine</i> , 1883.
D.T.	<i>Daily Telegraph</i> tablets of the Kuyunjik collection in the British Museum.
E.	E. Ebeling in <i>Archiv für Geschichte der Medizin</i> .
EB.	<i>Encyclopaedia Britannica</i> .
EC.	J. C. Booth, <i>Encyclopaedia of Chemistry</i> .
EPI.	G. Watt, <i>A Dict. of the Economic Products of India</i> .
FCH.	G. M. Crowfoot and L. Baldensperger, <i>From Cedar to Hyssop</i> .
FF.	C-P. Gillet et J-H. Magne, <i>Nouvelle flore française</i> .

- FH(P).* F. A. Flückiger and D. Hanbury, *Pharmacographia*, 2nd ed. 1879.
FJ. I. Löw, *Die Flora der Juden*.
(Forskål) FÆ. Forskål (Pehr), *Flora Aegyptiaco-Arabica*.
FP.² G. E. Post, *Flora of Syria and Palestine*, 2nd edl.
FTP. A. A. Temple, *Flowers and Trees of Palestine*.
GE. R. Campbell Thompson, *The Gilgamesh Epic*.
Getr. F. Hrozný, *Das Getreide im alten Babylonien*.
Glecs. C. Virolleand, in *Comptes-rendus du groupe linguistique d'Etudes chamito-sémitiques*.
HBf. G. Bentham, *Handbook of the British Flora*.
HC. F. Thureau-Dangin, *Une Relation de la Huitième Campagne de Sargon*.
HD. P. Pomet, *History of Drugs*.
HPP. G. Henslow, *Poisonous Plants in field and garden*.
HS. W. T. Fernie, *Herbal Simples*.
HWB. F. Delitzsch, *Assyrisches Handwörterbuch*.
IB. Ibn Beithar in Leclerc, *Notice des Manuscrits*.
IMP. K. R. Kirtikar, *Indian Medical Plants*.
ITT. *Inventaire des Tablettes de Tello*.
JAOS. *Journal of the American Oriental Society*.
JRAS. *Journal of the Royal Asiatic Society*.
K. The Kuyunjik Collection of Cuneiform Tablets in the British Museum.
KAR. E. Ebeling, *Keilschrifttexte aus Assur religiösen Inhalts*.
KB. *Keilinschriftliche Bibliothek*, ed. Schrader.
KBo. *Keilschrifttexte aus Boghazköi*.
Kl.B. H. Holma, *Kleine Beiträge zum assyrischen Lexikon*.
Kü. F. Küchler, *Beiträge zur kenntnis der Assyrisch-babylonischen Medizin*.
KUB. *Keilschrifturkunden aus Boghazköi*.
LB. W. M. Thomson, *The Land and the Book*.
LBL. R. Campbell Thompson, *Late Babylonian Letters*.
Liebesz. E. Ebeling, *Liebeszauber im Alten Orient*.
LPG. (Author unascertained) *Les plantes qui guérissent*.
LSS. *Leipziger Semitistische Studien*.
LTBA. L. Matouš, *Die Lexikalischen Tafelserien der Bab. und Assy. in den Berl. Museen*, 1.
MA. W. Muss-Arnolt, *A Concise Dictionary of the Assyrian Language*.
MAOG. *Mitteilungen der altorientalischen Gesellschaft*.
Mat. Matouš, see *LTBA*.
MB. Merodach-Baladan's garden, CT. xiv, 50.
ML. Musée du Louvre: *Textes cunéiformes*.
MMAP. *Mémoires de la Mission archéologique en Perse*.
MPB. C. Luerssen, *Medicinisch-pharmaceutische Botanik*, 2 vols., 1879-1882.
MT. Medical texts in cuneiform generally.
MVAG. *Mitteil. der vorderasiatischen Gesellschaft*.
NBB. E. Ebeling, *Neubabylonische Briefe*.
NBK. S. Langdon, *Neubabylonischen Königsinschriften*.
Nbn. J. N. Strassmaier, *Inschriften von Nabonid*.
NH. Pliny, *Natural History*, ed. Bostock.
OLZ. *Orientalistische Literaturzeitung*.
Orntl. *Orientalia*.
OTC. R. Campbell Thompson, *On the Chemistry of the ancient Assyrians*.
P. *British Pharmacopoeia*.
PBE. University of Pennsylvania, Babylonian Expedition.
PBS. *Publications of the Babylonian Section of the Univ. of Pennsylvania*.
PC. *Penny Cyclopaedia* (about 1839).
PE. R. Campbell Thompson, *The Prisms of Esarhaddon and Ashurbanipal*.
Pl. Refers to plate numbers in *CT*.

<i>P.M.M.</i>	J. Pereira, <i>Elements of Materia Medica</i> , 4th ed., 2 vols., 1855-1857.
<i>PRSM.</i>	<i>The Proceedings of the Royal Society of Medicine.</i>
<i>PS.</i>	Payne Smith, <i>Thesaurus Syriacus.</i>
<i>PSBA.</i>	<i>The Proceedings of the Society of Biblical Archaeology.</i>
<i>R.</i>	H. Rawlinson, <i>Cuneiform Inscriptions of Western Asia</i> , I-V.
<i>RA.</i>	<i>Revue d'Assyriologie.</i>
<i>Ranwolff</i>	Leonhart Ranwolff, in John Ray, <i>A Collection of Curious Travels and Voyages</i> , vol. 1 (1693).
<i>Rm.</i>	Rassam tablets of the Kuyunjik Collection in the British Museum.
<i>RS.</i>	<i>Revue Sémitique.</i>
<i>RT.</i>	<i>Recueil de Travaux relatifs à la philologie et à l'archéologie égyptiennes et assyriennes.</i>
<i>RTC.</i>	<i>Recueil de Tablettes Chaldéennes.</i>
<i>SA.</i>	C. J. Gadd, <i>The Stones of Assyria.</i>
<i>SM.</i>	E. A. W. Budge, <i>Syriac Book of Medicines.</i>
<i>TR.</i>	W. F. Ainsworth, <i>Travels and researches in Asia Minor, Mesopotamia, etc.</i>
<i>TA.</i>	J. A. Knudtzon, <i>Die El-Amarna Tafeln.</i>
<i>TCPP.</i>	M. Jastrow, <i>Transactions of the College of Physicians of Philadelphia</i> , 1913.
(Theophrastus) <i>E.P.</i>	Theophrastus, <i>Enquiry into Plants.</i>
<i>Tod.</i>	E. Ebeling, <i>Tod und Leben.</i>
<i>TR.</i>	Boissier, <i>Choix de Textes relatifs à la Divination.</i>
<i>TUrk.</i>	G. Reisner, <i>Tempelurkunden aus Telloh.</i>
<i>VAT.</i>	Vorderasiatische Tontafelsammlung of the Berlin Museum.
<i>VK.</i>	W. Rhind, <i>A History of the Vegetable Kingdom.</i>
<i>VM.</i>	<i>Vade Mecum</i> (see <i>JRAS.</i> 1934, 781).
<i>Von Opp.</i>	M. von Oppenheim, <i>Vom Mittelmeer zum persischen Golf.</i>
<i>VS.</i>	Vorderasiatische Schriftdenkmäler.
<i>WPI.</i>	E. J. Waring, <i>Pharmacopœia of India.</i>
<i>YOS.</i>	Yale Oriental Series.
<i>ZA.</i>	<i>Zeitschrift für Assyriologie.</i>
<i>ZDMG.</i>	<i>Zeitschrift der deutschen morgenländischen Gesellschaft.</i>
<i>ZK.</i>	<i>Zeitschrift für Keilschriftforschung.</i>

- A—B. GRASS, RUSHES, REEDS, CONVULVULI.
C. PLANTAIN.

A. GRASS, RUSHES, REEDS, CONVULVULI

1. ú(šAM), šammu, plant, grass, vegetable (and sometimes mineral drug).
2. šamSULLIM, dišú (grass, but with connection with tares, p. 146): šamŠÀ-ŠAR-GU-LA, dišarru (*Lolium temulentum* L.).
3. šamGUG₄, umšatu, a rush, but also perhaps specially *Rumex*, sorrel.
4. šamGUG₄, šuppatu, a rush (= šamurbánu).
5. šamGUG₄, elpitu, a rush.
6. šamGUG₄, urbatu, rushes generally, but particularly *Cyperus esculentus* L., the edible rush.
7. šamUrbánu, *Cyperus*.
8. šamŠišnu, šamšišanu, *Butomus*, esp. *umbellatus* L.
9. šamKungu, šamgungu (the gongae of Berosus), *Cyperus esculentus* L.
10. šamPapánu (= šamhad(t)ilu), some kind of rush, or word connected therewith.
11. šamTIR, ašlu, *Carex*, reed-grass.
12. šamGUG₄, kunittu, a rush, or word connected therewith.
13. šamTIR, šamLI-TUR, abukatu, ašlukatu, alaknu, perhaps pliant rush, but more particularly *convolvulus*; šamLI-TUR and abukatu especially *Convolvulus Scammonia* L., Scammony.
14. šamKazallu, similar to one of the above in No. 13.
15. Sungiru, sungirtu, a marsh-plant, food for wild asses, and perhaps used in making reed-pipes.
16. Šuppatu, kišu, p. 15.
17. šamKUL-LA (etc.), išbabbu, some form of *Atriplex* or spinach.
18. šamA-MEŠ-ŠA₅-A, alapú, probably *Mariscus elongatus*.

(A) Pl.* 40, Rm. ii, 41, i-ii, 1-13: for ll. 8-10, cf. Pl. 4, K. 4325, ix, 2-4:

	šam	Ú(šAM)	šam — mu
		SULLIM	di — šu
	šamLI —	A	„
	šamŠÁR —	RA	„
	šamLi —	šum	„
5.	šam	GUG ₄	um — ša — tum
	šam	GUG ₄	šub — ba — tum
	šam	GUG ¹	„
	šam	GUG ₄	el — pi — tum
	šamGUG ₄ -A	² BUR-RA ³	„ me-e bur-ki
10.	šamA —	GUG ₄ ⁴	„ „
	šamGUG ₄ -ŠU-KIN		.....
	šamGUG ₄	.....	.....

* [Wherever "Pl." occurs alone the reference is to plates in CT. xiv.]

¹ Scheil, RA. 1921, p. 5, šamGUG = šamšū-mut-tum, i.e. the "red plant", beetroot.

² Pl. 4, K. 4325, ix, 4 omits.

³ See Langdon, RA. 1916, 33, K. 9182 (CT. xiv, 33) + 79-7-8, 188 (CT. xviii, 21).

⁴ šamA-GUG₄: el-pi-tú: me-e bur-[ki], Labat, Comment. Assyriol. Bab. 60, 11 (CT. xli, 30, 11).

(B) Cf. 93042, r.2-7 (CT. xii, 27) : Chicago Syll., Luckenbill, *AJSL*. 1916, 175, 70 ff. :

	<i>ku-uš</i>	Ú(ŠAM)	<i>šam-mu(-u)</i>	<i>am-ma-tú</i>
	<i>ú</i>	Ú(ŠAM)	„	<i>ri-i-tú</i>
	<i>ku-uz-bu</i>	Ú(ŠAM)	„	<i>šam ku-uz-bu^{ki}</i>
5.	<i>ka-za-bu¹</i>	Ú(ŠAM)	„	<i>šam ka-zab^{ki}</i>
	<i>ka-za-bur</i>	Ú(ŠAM)	„	<i>šam ka-za-bur^{ki}</i>
	<i>kur-šam-me</i>	Ú(ŠAM)	„	<i>šam kur-šam-me^{ki}</i>

(C) 108860, Smith, *CT*. xxxvii, *Pl.* 32, i (iv), 38 ff. :

[^{šam} u]m-ša-tum	<i>šamel-pi-[tum]</i>
.....	<i>šamiḫ-.....</i>
.....-tum	<i>šamel-pi-tum šadî</i>
[^{šame}]l-pi-tum šadî	<i>šammai^{al} ^aIštar</i>
[^{šam}]sa(?) -a-mu	<i>šam ^{is}KU el-pa- . . -te</i>
[^{šam}]šá-mu šámu	<i>šam ditto</i>

(D) *Pl.* 18, K. 4354, i-ii, 1-16,² and cf. *Pl.* 43, Bu. 89-4-26, 112, 1-9 :

.....
<i>šam</i>	.....
3 <i>šamur-[ba-tu]</i>	<i>šam sa-a-r[u]⁴</i>
<i>zir šamur-ba-te</i>	<i>šam ku-un-gu</i>
<i>šam ku-un-gu</i>	<i>šam gu-ú-ru</i>
5. <i>šam ḫa-ti-lu</i>	<i>šam pa-pa-a-nu</i>
<i>šam šal-la-pa-nu</i>	<i>šam šiš-a-nu</i>
<i>šam (gu-ug)GUG⁵</i>	<i>šam šī-iš-nu</i>
<i>šam iš-bab-tú</i>	<i>šam mal-laḫ⁶ tu⁷</i>
<i>šam iš-bab-tú tam-šil</i>	<i>šam ^{is}ḫašhur a-bi</i>
10. <i>šam šī-i-tum⁸ tam-šil</i>	<i>šam iš-bab-tum⁹ inbu-šú¹⁰ argu u ḫa-aš</i>
<i>šam šá-mi šêri</i>	<i>šam iš-bab-tum</i>
<i>šam iš-bab-tum eqli¹¹</i>	[^{šam}]si-sa-tum
<i>šam</i>	[^{šam}]š-bab-tum
<i>šam i[š-bab-tum]</i>	..... rabûti ¹²
15. <i>šam GAL — ŠAR</i>	<i>šam KANKAL</i>
<i>šam ki-di</i>	<i>šam KANKAL ma-a-a-al ^aKU¹²</i>

¹ Chicago, *ka-zab*.

² *Ll.* 2-4 are duplicates of Smith, *CT*. xxxvii, 29, 108860, ii, 28-30 : (28) *šamur-ba-te* = *šam sa-a-[rum]* (29) *šam zir* ditto = *šam [ku]n (?) -g[u] (?)*, (30) *šam ku-un-gu* = [*šam*g]u-u-rum.

³ See (*L.*) p. 6.

⁴ Note 1 shows that my reading in *CT.* was probably better than that in *AH.* 2 (see *ib.* 277), the traces of the last character being hardly the *mu* of *sa-a-mu*, (cf. p. 10).

⁵ Bu. 89-4-26, 112, has no rule-line, and inserts the line . . . | *šamur-ba-te* 3 *si-ip-pu-šú*.

⁶ Bu. 89-4-26, 112, *laḫ*.

⁷ Bu. 89-4-26, 112, *tum*.

⁸ Bu. 89-4-26, 112, *tú*.

¹¹ From the traces on the two texts.

⁹ Re-examined in 1922, *tum*.

¹⁰ Bu. 89-4-26, 112, *šá*.

¹² Re-examined. Text as on *Pl.* 18.

(E) Pl. 34, K. 4182 (obv., top of Cols. iii-iv of K. 267, Pl. 21, same tablet :

[^{šam} šul]-la-pa-a-nu		^{šam} šiš-[(a)-nu]
[^{šam} ša]l-la-pa-a-nu		^{šam} šal-l[a-pa-nu]
[^{šam} ša]l-la-pa-nu		^{šam} šal-l[a-pa-a-nu(?)]
[^{šam} ši]-iš-nu ut-liš		^{šam} ur-b[a-tu]
5.	[^{šam} . . .] 1-GAL	^{šam}
	[^{šam}] (. . . -rin)	^{šam}
	[^{šam}]	^{šam}
	[^{šam} ur]-ba-tum	^{šam}
	[^{šam} šu]b(?) -ba-tum	^{šam}
.

(F) FAT. 9000 :

(a) ^{šam} šal-la-bi-nu	^{šam} šal-la-ba-nu
(b) ^{šam} šal-la-ba-nu	^{šam} ši-iš-nu
(c) ^{šam} pa-pa-a-nu	^{šam} ši-iš-nu

(G) K. 4174, i-iv, 10-14 (CT. xi, 45) :

10.	ni-in-ni	^{šam} TIR	^{šam} le-ir-min-na-bi	áš-lum
	gi -- in	TIR		
		^{šam} GUG ₄	^{šam} le-ir-min-na-bi-la-gab-	
	áš ² — ki		ba-ku : ku-nit-tum	
	. . -ub	^{šam} GUG ₄	„ „	ur-ba-tum
	[nu]-mu-un ⁴	^{šam} GUG ₄	„ „	šup ³ -pa-tum
		^{šam} GUG ₄	„ „	el-pi-tum

(H) Pl. 37,
Rm. ii, 479 :

	[^{šam} TIR]	áš — lum
	TIR	
	[^{šam}]	ur-ba-tú
	TIR	
	^{šam} TIR	el-pi-tú
5.	^{šam} TIR	
	TIR	ki-li-lu
	^{šam} TIR	
	TIR	a-bu-ka-tú
	^{šam} TIR	
10.	^{šam} TIR	áš-lu-ka-tú
	^{šam} LI-TUR	
	^{šam} LI-TUR	a-bu-ka-tú
	^{šam} LI-TUR	áš-lu-ka-tú
	^{šam} ka-zal-lum	ki-li-li
	..... — HUM	ka-zal-lu
	.....	lu-lu-u

¹ Hardly [^{šam}KUN] or [^{šam}ŠIŠ]: see Pl. 38, S. 8, A-B, 2-3, p. 6. The whole is more probably [^{šam}]GAL from Pl. 9, K. 4373, rev. viii-vii [sic], 11.

² Restored from Pl. 33, K. 9182, 2 + CT. xviii, 21, 79-7, 8, 188 (joined by Langdon, RA. 1916, 33), ^{šam}áš-ki . . . with ^{šam}GUG-A BUR-RA in the next line.

³ Cf. ^{šam}šu-up-pa-tum = ^{šam}ur-ba-nu, BRP. iv, no. 32, 27.

⁴ D. No. 66, C. 17 (from Weidner).

(I) Pl. 38, S. 8, Cols. A-B, 1-8:

.....
[šam]HI — RI — IN ¹	ditto
šamKUN — GAL	ditto
šamŠIS — GAL	ditto
šamŠAG — ILA	a-ra-an-tú
5. šamKUL — LA	iš-bab-tú
šamKUL-IA — LAB-BA	ditto
šamKI — A	ditto
šamKI — LAL	ditto

(J) Rm. 122 (Langdon, *RA.* 1916, 31 r., (3) šam-ra-a-nu = šam-a-ra-an-tú² = šam-a-la-nu-u (4) šam-me HA ^hi-a, followed (in l. 7) by [*Enuma ina bîli* (?)]) šamKANKAL: šam-a-ra-an-tum innammār “[When in a house (?)] KANKAL (= arantum) appears”, and l. 9, šam-a-ra-an-tum: šam-la-ar-du. Cf. also *CT.* xi, 45, i, 22 lu-ar-du, (23) . . . = a-ra-an-tum.

(K) Pl. 35, K. 271, 10-17:

10. šamlu-lu-tú	šam-a-ra-[an-tú] ³
šam-a-nu-nu-tú	šam [„]
šamŠAG — ILA	šam [„]
šamŠAG — KAL	šam [„]
šamPI — PI	šam [„]
15. šamPI-PI-ŠAL-LA	šam [„]
šamLIT — TIR	šam [„]
zir šamLIT-TIR	zir šam [„]
.....

(L) I have grouped these two quotations here, but it seems quite uncertain whether the *urpatu*-group is connected with that of šamDU₁₃-A-NI preceding it:

VAT. 9000:

(a) šamum ⁴ — ša — tu	šamza (or ha)-ši (?) -bi-tú (?) ⁵
(b) šamDU ₁₃ -A-NI	[šamL]a-[šī]r-bi-[tú] ⁶
(c) šamAMA-A-NI	[šamšī]-šī-[tu] ⁶
(d) šamur-pa-tú ⁷	[šams]a-a-[ru] ⁶
(e) šamzir „	šam[gu]-nir (!) (= un)-[gu] ⁸
(f) šamgu-nir (!) (= un)-gu ⁹	šamgu-u-[ru] ⁶

¹ Cf. *KAR.* 202, ii, 32 (dup. *CT.* xxiii, 43, 28) šamKANKAL HI-RI'(-IN) šamSU-AN-TAR-RA, etc.

² For šamšamranu = šamarantú see *Mat.* 86, 2, 3.

³ Cf. 108860, *CT.* xxxvii, 32, 47, . . . [tu]m = a-ra (!)-an-tu.

⁴ It must be um, although the photograph suggests lu or su. What is the relation here to *VM.*, *Mat.* 88, 2, 31?

⁵ The photograph suggests this, but I am doubtful about it.

⁶ Restored (all practically certain) from *VM.*, *Mat.* 88, 2, 32-6. For sa-a-ru and sa-a-ru šā šē see Leeper, *CT.* xxxv, 2, 58, 59.

⁷ What is the relation here to *VM.*, *Mat.* 88, 2, 34, ¹⁵KI-NITA imeri | ina sa-a-ru?

⁸ *Mat.* 88, 2, 35, ¹⁵zir ur-ba-tum | ina kun-gu.

⁹ *Mat.* 88, 2, 36, ¹⁵kun-gu.

(M) Smith, *CT.* xxxvii, 28, i, 26 :

26.	<i>šam</i> DU ₁₃ -A-KAK (!) (= NI)	<i>šam</i> la-[<i>šir-bi-tú</i>]
	<i>šam</i> AMA-A-NI	<i>šam</i> š <i>i</i> -[<i>š<i>i</i>-tu</i>]
	<i>šam</i> ur-ba-te	<i>šam</i> sa-a-[<i>ru</i>]
	<i>šam</i> zir „	<i>šam</i> [<i>ku</i>]-[<i>u</i>]n-[<i>gu</i>]
30.	<i>šam</i> ku-un-gu	<i>šam</i> [<i>g</i>] u-u-rum

(N) *Pl.* 38, S. 8, iii, 7-15 :

	<i>šam</i> AMA-A-NI	.....
	<i>šam</i> AMA-A-NI	.....
	<i>šam</i> š <i>á</i> DU ₁₃ -A-NI	.....
10.	<i>šam</i> š <i>á</i> DU ₁₃ -A-NI	.....
	<i>šam</i> š <i>á</i>- .....	.....
	<i>šam</i> a- .....	.....
	<i>šam</i> a- .....	.....
	<i>šam</i> a- .....	.....
15.	<i>šam</i>.....	.....

(O) *Pl.* 38, K. 5424, B, i-ii, 3 :

[<i>šam</i> AMA]-A-NI	<i>šam</i> [<i>š<i>i</i></i>]-š <i>i</i> -tú
------------------------	--

(P) *Pl.* 24, K. 4412, iii-iv, 7-14 ; *Pl.* 37, K. 4417, 3-1 :

<i>šam</i> A-MEŠ-ŠA ₅ -A	<i>šam</i> a-la-[<i>pu-u</i>]
<i>šam</i> ŠA ₅ -A-A-MEŠ	<i>šam</i> a-la-[<i>pu-u</i>]
¹ <i>šam</i> iš-bab-tu ¹⁹ kirî	<i>šam</i> a-la-[<i>pu-u</i>]
10. <i>šam</i> nâri	<i>šam</i> a-la-[<i>pu-u</i>]
<i>šam</i> ha-mi nâri	<i>šam</i> a-la-p[<i>û-u</i>]
<i>šam</i> i-lat ² egli	<i>šam</i> a-la-pu-[<i>u</i>]
ha-am-mu š <i>á</i> be-ra-ti	a-la-pu-u ³ š <i>á</i> mē [^{pl}]
<i>šam</i> ĀŠ-HAR-ZU	<i>šam</i> mi-ig-ti ha-am-mu . .
⁴ [ha-am-mu] š <i>á</i> ¹⁹ elippi	ha-am-[mu] š <i>á</i> be-r[a-ti]

¹ This line is put after l. 12 on K. 4417.² There is a variant form ¹⁹el-lut egli in *VM.* (i.e. *Pl.* 10, r. 1, and *Mat.* 88, 2, 22).³ K. 4417, ú.⁴ Line not on K. 4412. Scheil, *RA.* 1921, p. 42 (*šam*)ha-am-mu : elippi, followed by š*á* birâti.

(Q) VAT. 9000 :

(a) <i>šam-a-ka-ak nâri</i>	<i>šam-a-la-pu-u</i>
(b) <i>šamšâ-mu nâri</i>	<i>šam</i> "
(c) <i>šam-i-lat eqli</i>	<i>šam</i> "
(d) <i>šamîš-bab-tû ʿškirî</i>	<i>šam</i> "

1. *Šammu* "plant", "grass", "vegetable" (and sometimes mineral drug¹).

This word begins one of the great Series of Plants.

(a) As "herb of the field", "grass", it is eaten by lambs, *AM.* 85, 1, ii (= v), 7 ("kidney of a little lamb which has not yet eaten *šammu*"); by oxen, Bu. 80-7-19, 130, 6 (*MA.* 1050, Meissner, *Studien*, *MAOG.* iii, 3, 45) ("the ox of an enemy eats *šamme*"): Ungnad, *PBS.* vii, 28 ("an ox broke through and ate *šammi*", Hammurabi-period; by horses (the horse speaks of horses as "choosing the best of the *šamme*, the grass of the earth", *CT.* xv, 36, Ebeling, *MAOG.* ii, 3, 36, 12); by gazelles ("with the gazelles he (Engidu) eats *šammu*", *GE.* i, iv, 3). *Šammê*² occurs in *KAR.* 203, r. iv, 40. *Šam-mu* is "harvested" (*ēsidu*) (Dougherty, *Arch. f. Erech.*, date of Nbk., No. 71).

(b) As the determinative of all plants. In the Ras Shamra texts *s-m-m* means "plants" in general (Virolleaud, *Glecs.* i, 1938, 22).

(c) "Plant," in relation to its place of origin, e.g., *šamninû* (*Ammi*) is called [*šam*]*šami ʿškirî* "plant of the garden" (p. 68): *ʿš-GIR* (acacia, thorn) is called *šamšami šadi* "plant of the mountains" (p. 180): *alapû* (*agrostis*) is called *šamnâri* "plant of the river" (p. 7): *šamimbû tâmtim* (p. 238) is called *šamšami kirib tâmtim*, *šam tâmtu rapaštu* ("plant of the middle of the sea, plant of the broad sea").

(d) The Assyrian word *šammu* has sometimes actually been incorporated in a plant-name borrowed from Assyrian by other Semitic dialects, e.g., the Assyr. *šamterinu* is probably the Syr. *samiʿrên*, and *šambalitti šar* (fenugreek) becomes in Aram. *šebhlillû* (cf. even the Syr. *pʿliltâ*).²

(e) *Šammu*, frequently *šamu*, takes on the meaning "drug": e.g. "if a man *šamma išti-ma*, has drunk a drug and has not vomited evacuated) (*iṣru*)", *Kü.* ii, iii, 44. "If a woman *šammê² zirute šukul* has been given harmful drugs to eat," *KAR.* 194, r. iv, 29. Also in such phrases as *šam ka-gig-ga-kan* "drug for toothache" (i.e. male mandrake and root of pyrethrum, *Pl.* 23, K. 259, 1 and 6): *šam ku-gig* "drug for anus-sickness" (hæmorrhoids, *RA.* 1929, 53, n. 4), such as mint, laurel, shoe-makers' gall, seed of tamarisk (gall), root of mandrake, and *Eruca*, *KAR.* 203, r. iv, 1-6): *šamšami nissati* "drug for depression of spirits" (i.e. cannabis, p. 228). *Šam balati* "drug for life", while having the special meaning "opium" (p. 227), is used in an Assyrian letter as "revivifying plant" in general: "the King, my Lord, has given us life, putting the plant of life" in our nostrils", *ABL.* 771, 6. More simply, we find *šam libbi* "drug

¹ Note *aban ʿ(šam)* = *šam-mu*, *KAR.* 14, ii, 25.

² This coalescence is paralleled by the Assyr. *hûl šamtiyātu* "gum of *Asa foetida*" becoming the late Heb. *hîlîth*.

for heart" (or whatever may be the part of the body intended here), which is hellebore, reckoned as a drug for mania (p. 153). More elaborately, *šamšami dāmi parasi* "drug for stopping blood" (i.e. tamarisk-gall, Pl. 36, 79-7-8, 22, r. 3: cf. KAR. 191, ii, 15): *šamšami simmati nasahi* "drug for removing poison", Pl. 36, 79-7-8, 22, r. 7.

(f) Colours applied to *šammu*:

šamšamu salmu "black drug" (p. 130), i.e. *Ricinus*, probably referring to the dark leaves. *šamšamu šamu(DIR)* (p. 353) "red drug" (p. 355), *Asa foetida*: *šamšamu šamu(GUG)* "red plant" (p. 50), beetroot (A, 6 (p. 3) gives *šamšabbatu* for *šamGUG₄*. In C, 43 (p. 4), *šamšamu šamu(DIR)* is "red drug" = *šam* ¹³KU *el-pa-a(?)* -te (suggesting a reed-arrow(?)).

A curious use is the contrast in AM. 52, 3, 9 of *šamLAL šamma šamLAL* "the plant LAL and the drug of the plant LAL", in a salve for ulcers.

(g) *Šammê¹* is constantly used to include various drugs in a summing-up in prescriptions, e.g. 12 *šammê¹ qat edimma(ma) ina šikari išatti¹* "twelve drugs for the Hand of a Ghost in beer he shall drink", AM. 76, 1, 22. These may include mineral drugs (e.g. alum, DACG. 73).

2. *šamDišu*, *šamdišarru*, see p. 146.

3. *šamUmšatu*, for which Holma (KL. B., 4 and 61) suggested the Arab *hamḍ*, *Rumex* (the Syr. *hammūthā*). This comparison is possible so far as *Rumex* (sorrel) may be considered similar to the grass or reeds included in this group. Ainsworth, *Assyria* 36, speaks of *Rumex acetosa* (Arab. "hornail") as occurring in Mesopotamia.

4. *šamŠuppātu*, almost certainly to be read thus from BRP. iv, pl. 37, 27; *šamšu-up-pa-tum* = *šamur-ba-nu*. The variant is *šubbatum*. The Heb. *šūph* "reed" is a possible cognate, but doubtful. *Šuppātu* occurs in Reisner, *Hymnen* No. 1, r. 56, *ki-ma šup-pa-ti ū-še-man-ni ki-ma el-pi-ti ū-še-man-ni* "like a *šuppātu*-reed he has made me, like an *elpitu*-reed he has made me".

5. *šamElpitu*, with which I wrongly, I think, connected the Aram. *ḥalfā* (PSBA. 1906, 225: cf. also Holma, KL.B. 92). Rather, I think, should the Aram. *ḥālāphā* be referred to *šamalapū* (p. 17).

Its Sumerian equivalents *šamGUG₄* and *šamTIR* show it to be a pliant rush. *šamElpitum mē burki* suggests a rush "of the water of a pool" (Heb. *b^erēkhāh* "pool"), contrasted with *šamelpitum šadī* ("a rush of the mountains"), while its equivalence "couch of Ishtar" may indicate rushes for couches or mats (comparable to *šam kidi* = *arantu* = "Couch of Ea", doubtless a semi-submerged grass, p. 17).

Another equivalent, *šamA-GUG₄*, again suggests a water-plant (rush or reed). It is used for making a bed (cf. "Couch of Ishtar" above) (Langdon, PBS. xii, i, 29, 26), i.e., a rush-mat similar to that made from *šamurbatu* (p. 10). More important, *šamA-GUG₄* occurs in Langdon's *Poème Sumérien*, 196, 26, as an edible plant, which at once indicates it as the equivalent of the modern *bardi* (p. 10). It is stiff and strong enough to stir up flour of *še-šiš* ("bitter corn") in water in a bull's hoof¹ previous to pouring it on the ground to prevent ghosts haunting a man, CT. xxiii, 17, 35 (note also

¹ The implication of the "bitter meal" in the bull's hoof is perhaps to symbolize the kicking forth of the ghost with bitterness.

p. 103). Cf. *el-pi-tum* : *ana šaḥi āri ša gišinnari na-ši*, Labat, *Comment. Ass.-Bab.* 58, 12 (*CT.* xli, 30, 12).

In *MT.* ^{sum}A-GUG₄ is prescribed ext. on a swelling with *Acorus calamus*, dried, pounded, with powder of *supuhru* cedar in fine-ground flour, steeped in rose-water and bound on, *KAR.* 192, 40 (for the use of rushes thus see p. 22).

Other equivalents are : *ni-i-mu* = *el-pi-e-tum*, *CT.* xviii, 3, vii, 36 (cf. *ib.* 16, *Rm.* 346, 10). *C.* 42, 43 (p. 4) give [^{sum}]šāmu(?) and [^{sum}]šamu šāmu = ^{sum}is^{ku} *elpāte* (probably), presumably a red plant (reed) or drug which provides a weapon (arrow?). For ^{sum}elpitu *himū* (bound on locally alone) prob. for snake-bite, see Scheil, *RA.* 1918, 75, 8.

6. ^{sum}urbatu, ^{sum}urpatu, etc., "rushes" generally, and *Cyperus papyrus* L. (the Galingale) in particular.

Shalm. III (*Mo.* 77) speaks of boats of ^{ur}urbate "rushes", as contrasted with boats of ^{ma}šak^{la}ḥšē "skin-bladders" (i.e. the Mesopotamian rush-boats (*mašluḥ*) of to-day, rather than the mere reed-floats or rafts. *Iršu urbatī* is a rush-bed, doubtless the reed-mat (Johns, *AJSL.* 1917, xxxiv, 64)¹ and, still more generally, *īšaṭ urbate* "a fire of reeds", *CT.* xxiii, 34, 34.

On the other hand ^{sum}urbatu has the equivalence particularly of the Syr. 'ārbāthā (Arab. *asal*, *FJ.* i, 568, see *ašlu*, p. 12), the *bardī*-rush of S. Babylonia with an edible root, *Cyperus esculentus* L. (Post, in *Hastings DB.* ii, 13).²

Most noticeable is the ^{sum}urbate 3-sippu-šu, which as Mr. Gambier-Parry suggested to me, probably refers to the three edges or corners of the *Cyperus* (cf. *NH.* xxi, 69, "another kind of rush, of a triangular shape, to which they give the name of Cyperos"; Lindsay, *Isidori Hispalensis Episcopi etym. sive originum*, Lib. xx, xvii, ix, 8 "Cyperum a Græcis vocatum . . . Radix est junci trianguli"; *EB.* xith ed., vii, 692, says that the *Cyperaceæ* are grass-like herbs generally three-sided aerial stems, chiefly marsh-plants; *VK.* 202, of the *Cyperaceæ*, "generally growing in moist places . . . ; stem a cylindrical or triangular culm . . . ; the leaves sheathing (cf. *šallapānu*, p. 12) . . . resemble the grasses."

In *MT.* ^{sum}urbatu occurs thus :

(1) *Simply* ; ext. : as a bandage (not for eyes, but prob. snake-bite), Scheil, *RA.* 1918, 75, 9 (^{sum}urbatu *himū*).³

(2) There is apparently a "vinegar" of *urbate* (as also of *GI-ŠUL-ŠAR*), comparable to that made from the Great Galingal mentioned by Pomet (*HD.* 34) : "The Root [of the Great Galingal] is of no other Use when dried

¹ The rush-mats of Madras are made from species of *Cyperus*, *EB.* xivth ed., xix, 19, 513 : four species are given as providing the material for Indian mats, *CPI.* 466.

² *FP.* ii, 665, *bardī* = *juncus* : *FJ.* i, 557, 567 = *Cyp. papyrus*.

³ *Himū* occurs also in Scheil, *ib.* 75, 8, and 10, applied to ^{sum}elpitu and ^{sum}papānu, and it may well be that we must restore the drugs used for snake-bite on *Pl.* 23, K. 9283, iii, 6-8, with these :

[^{sum} el-p]i-tū	šam KA-ŠIR	hi-mu-ú ana pān KA [LAL-du]
[^{sum} ur-b]a-tū	šam KA-ŠIR	hi-mu-ú ana pān KA LAL-[du]
[^{sum} pa-pa]-a-nu	šam KA-ŠIR	hi-mu-ú *maīāli NA (v.šu) [NIQIN-ú]
[^{sum}]HUB-KUD-DA	šam KA-ŠIR	ina kišadi-šu tašakkan(an)

Scheil is probably right in referring it to the same root as *himetu* ("ghee"), but I doubt whether it means "fat".

than for the Vinegar-makers, who use it instead of the less sort for making Vinegar." *KAR.* 194, iv, 29, runs: "When a woman, having been given noxious drugs to eat,¹ water comes copiously into her uterus . . . , that her sickness² may not be of long duration, BIL-LÁ ^{am}urbate GIR-PAD-DU *tusahhar(ar)*, thou shalt reduce vinegar (of) *Cyperus* (and) bones, and †³, put into her uterus on (in) a cloth." *Cyperus*-root is prescribed in fumigation to uterus for promoting menstruation by *Diosc.* i, 4. Pliny (*NH.*xxi, 71) mentions *Holoschænus*-root for staying menstruation.

(3) *Root*: *išid urbati*, peeled and eaten for snake-bite alone, *AM.* 92, 7, 6. *Diosc.* i, 4 prescribes *Cyperus*-root for scorpion-stings, and Pliny (*NH. ib.*) the chewing of *Holoschænus* for the bites of spiders. The root of ^{am}GUG₄, †, boiled in the urine of the man and beer is rubbed on *ritti* (hands), *AM.* 98, 3, 3.

(4) *Seed*: (*i.e.*, ^{am}kungu, p. 12). It is used with PA (tops) of ^{ig}ipari as a poultice for heartburn, *Kū.* ii, ii, 42.

(5) *Ashes* of ^{am}GUG₄: *ext.* in wool in uterus as *styptic*, *KAR.* 194, iv, 22. *Int.*, to stay menses, "reduced" (*i.e.*, to ashes) with twisted horn of goat, and drunk in beer, *KAR.* 194, 38.

(Uncertain mention of *urbatu* (no det.) in stomach-text, *AM.* 29, 3, 10, 12: *Cyperus*-root is used for colic, *HD.* 35).

7. *Urbatu* = ^{is}urbanu (*VR.* 47, i, 50), *i.e.*, the Syr. 'arbānā, *Cyperus* (*HWB. s.v.*) (= Arab. *bardī*, *FJ.*² i, 568).⁴ It is also the scribe's reed; cf. [ša] ina ^{am}urbanni annā šatru "which is written with this reed" (*Klauber, Pol.-Rel. Texte*, No. 26 and p. 48). To this add the equivalence ^{am}urbanu = ^{am}šuppatum, *BRP.* iv, 37, 27.

For the vegetation which fringes the *Khor*, that immense tidal lake of S. Babylonia, see *A.*, 174 (= *Mariscus elongatus*): the *Cyperus longus* *L.* was seen near water in Mesopotamia (*Von Opp.* ii, 388). The various species of *Cyperus* in Egypt are given by Forskål (*Flor. Æg.* LIX, LX) as *fastigiatus* (Arab. *samir*, *dabbus*), *complanatus* (Arab. *salad*), *ferrugineus* (Arab. *sōid*), and *esculentus* (Arab. *hab el-aziz*). For ancient representations see the sculptures of Sennacherib (*Gadd, SA.* pl. 13, *etc.*) and more modern, Temple, *FTP.* frontispiece: (for reed-huts, Peters, *Nippur*, ii, 75.) Rauwolf (ii, 194) at Baghdad noticed "the delicate round *Cyperus* Root, by the Inhabitants called *Soëdi*, whereof one may find great quantities growing in mossy and wet Grounds".

8. ^{am}Šišnu, ^{am}šišanu, Syr. šišnā, *Butomus*, the flowering rush (*FJ.*² i, 573: *FP.*² ii, 539) = *Butomus umbellatus* *L.*, which Ainsworth saw near Julamerk (*T.*, ii, 292). In Russian folk-medicine the root of the *Butomus* is used for hydrophobia (*HS.* 481: cf. ^{am}urbatu for snake-bites, p. 10). According to p. 5, l. 4 [^{am}š]išnu is, vulgo, ^{am}urbatu² p. 4, D l. 6, ^{am}šišanu is a variant of ^{am}šallapanu. (*Holma, Kl.B.* 87, šišnu correctly, but curiously he makes šēšanu the Heb. šūšan, 94).

¹ Šu-ku-ul, cf. *Pl.* 23, K. 9283, 11, amelu šu-ku-lu u NAK-u "the man being given (it) to eat and drink (?)".

² Ana DA (?) (perhaps šihā "attack") murši-ša la araki.

³ † indicates, wherever used, that the drug in question is combined with others in a prescription.

⁴ It is possible that *bardī* is the same word as the Assyrian *urbatu*.

^{Sam}*Šallapanu* (v. ^{Sam}*šallabinu*, ^{Sam}*sallabanu*), probably from *šalāpu* "draw (a sword)", i.e. of a sheath-like nature (p. 10). It occurs in *MT.*: for lungs (ḪAR^{pl}ša *šēha zamra* "which sing with breath"), bray, drink alone in *kurunnu*-beer (or, beer), *KAR.* 203, iv, 26, *dup.* D.T. 136, *Pl.* 31, 6. Unknown disease, † (?), drink, *AM.* 82, 3, 11.

9. ^{Sam}*Kungu* (v. ^{Sam}*gungu*). Apparently in *MT.* as *ku-un-g[i]*, †, in a poultice for a blow (*mišitti*), *AM.* 79, 1, 24. Its equivalence, "seed of *Cyperus*" (p. 7, l. 29), need not be taken too literally. ^{Sam}*Kungu* must be the *gongae* of Berosus (*AH.* 32: Cory, *Anc. Frag.* 2nd ed., 21): "in the lakes [of Babylonia] were produced the roots called *gongae*, which are fit for food" (i.e. the mod. Arabic *bardī*).

Another equivalent for this is *gûru*, prob. the Syr. *qûrâ* "palm-marrow" (like ^{Sam}*qûru*, Jensen, *ZK.* ii, 1885, 26; see p. 309). Cf. *gu-ur GI-ŠUL-ŠAR*, *CT.* xxiii, 41, 12: *AM.* 20, 1, 44 ("pith of the *GI-ŠUL-ŠAR* a rush"): *gu-ra šā qanî* "pith of a reed", *AM.* ii, 2, 37. *Ku-û-ri* is given as equivalent of *GI-ZU-LUM-MA* (p. 209) by Pinches, *PSBA.* 1894, 329, 4. The Syr. *guryah*, given in Löw, *Ar. Pfl.* p. 141, as equivalent to *skinôn schœnun*, may be connected.

The indication in the *VM.* (*Pl.* 10, r. 15: *Mat.* 88, 2, 36), ^{is}*kungu ina gûru* is interesting, as also is the previous line ^{is}*zir urbatum | ina kungu*. In both cases we are given their simple equivalents in the right-hand column.

10. ^{Sam}*Papānu* (= ^{Sam}*had(t)ilu*, p. 4, D 5). It occurs in *MT.* as ^{Sam}*papānu himû*, to be bound on locally for snake-bite (p. 10, n. 3).¹

11. ^{Sam}*Ašlu*, the Syr. *ašlâ*, *Carex* (*FJ.* i, 572), the reed-grass from which ropes are made (*ib.* 574). A peculiar pliancy is indicated by the frequent employment of the epithet "male" to this ^{Sam}*ašlu*-rush, when it is used for plaiting magical cords, e.g. with white wool (male ^{Sam}*ašlu*^{TIR}), *AM.*

19, 1, 24: with gazelle-sinew (male ^{Sam}*ašlu*^{TIR}), *AM.* 20, 1, 30: (cf. also "male ^{Sam}*ašlu*^{TIR}", *AM.* 102, 24, ff.; "male ^{Sam}*aš-lam*", *AM.* 104, 1, 13:

"male ^{Sam}*aš-lum*" with PA (tops) of male palm, Langdon, *PBE.* xxxi, 60, 5): without the epithet male, with KAN-DA(*sic*)-wool, etc., ^{Sam}*ašlu*^{TIR}, *KAR.* 194,

22. Cf. also *CT.* xvii, 23, 169, ^{Sam}*ašlu*^{TIR} . . . , Assyrian uncertain. . . . ^{Sam}*ašlu*^{TIR},

†, for the Hand of a Ghost, *AM.* 100, 2, 10. The seed of male *aš-li* is brayed [and applied] † to eyes, *AM.* 12, 4, 5.

^{Sam}*ašlu*^{TIR} occurs as early as the 3rd Dyn. of Ur (De Genouillac, *ITT.* iii, no. 6351), and *ašlatum* as late as a contract of Artaxerxes (Peiser, *KB.* iv, 312). One of its synonyms, *kilîlu*, is obviously the same root as the late Heb. *k'îlîlâ* "crown", woven from the pliant rush. (Here, too, can be mentioned the words *aškukatu*, probably a -*k* formation from *ašlu*, and *abukatu*, Scammony, a convolvulus, both synonyms, for which see p. 13 further). ^{Sam}*LI-ṬUR*, another synonym, undoubtedly similar to ^{ser}*LI-ṬUR*, properly the navel-cord (*abunnatu*), i.e., similar to the convolvulus.

12. *Kunittum*, fem. of *kuninu*, *MA.* 403. The root occurs in *GI-GAR-ŠUR-RA* and *GI-GAR-BI-ŠUR-RA* = *qanû kuninnâlu*, 42339. *Pl.* 47, 14, 15: . . . *kuninnâlu*, 36481, *Pl.* 49, r. 1: *kuninnu ša qanê* (= KUNIN (NUMUN

¹ Cf. *Kilîlanu*, p. 329.

within RIM), D. 487, 4). *šamKunittu* occurs as one of several plants or plant-products to be strung on a thread, KAR. 185, iii, 15.

13. *Abukatu* and *ašlukatu*, equivalences to *šam*^{TIR} and *šam*^{LI-TUR} (see above, p. 12, for a comparison with *šer*^{LI-TUR}, *abunnatu*, navel-string). There is no reason to suppose that *šamabukatu* and *šamašlukatu* are the exact equivalence of the rushes *šamašlu*, *šamurbatu*, or *šamelpilu*, merely because they are equated with the Sumerian for these. *šam*^{LI-TUR} and *šam*^{TIR} are never equated with each other.

Most important is the fact that both *šam*^{LI-TUR} and *šama-bu-ka-tu* provide a gum, e.g., from VAT. 9000 :

(a) <i>šam</i> ^{NU-UG}	<i>šama-bu-ka-tú</i>
(b) <i>šam</i> ^{LI-TUR}	<i>šama-bu-ka-tú</i>
(c) <i>šama-bu-ka-tú</i>	<i>šama-la-aq-nu</i>
(d) <i>šam</i> ^{A-DAN} <i>a-bu-ka-tú</i>	<i>šam</i> ^{hi-il} <i>šama-la-aq-nu</i>
(e) ¹ (<i>šam</i> ^{hi-i} [<i>l</i> (?)])	<i>šam</i>) ¹
(f) ² <i>šam</i> ^{A-DAN} <i>šim-tu-te</i>	<i>šam</i> ^{hul} <i>ú-GIR</i>
(g) <i>šam</i> ^{A-DAN} <i>ú-GIR</i>	<i>šam</i> ^{GÁN-ZI} <i>šá šadî</i> (?)-(i) <i>šam</i> ^{la-pat} <i>ra-man-nu</i>

This gum (*hulu*) of *LI-TUR*, *LI-TAR* (less common), *LI-TUR* (once, *AM*. 41, 1, iv, 24), and *abukatu* (spelt out) is found in *MT*. thus :

Ext. : *Eyes*, †, *AM*. 9, 1, 30 : † (?), 12, 4, 13. *Breast* (lung-trouble), after cleansing mouth, and putting oil in nostrils, as poultice, †, *AM*. 26, 3, 4. *Chilblains*, †, *AM*. 32, 5, 12 : blains, *AM*. 32, 5, 4, 7. In a lotion, †, *AM*. 94, 2, ii, 10.

Int. : *Stomach*, †, *AM*. 39, 1, 43 : †, 40, 1, 48, 50. *Urinary*, †, *AM*. 66, 7, 14. Apparently to stay *menses*, judging from the parallels in a long list of prescriptions, drink alone in beer, *KAR*. 194, r. iv, 26.

Enema : †, *AM*. 43, 1, 8 : †, 94, 2, i, 4.

Fumigate : †, *AM*. 99, 3, 6.

Note the use of a variety of this drug "gum of *LI-TAR* *šadê*(e) ("of the mountains)", †, *AM*. 83, 1, 5 : "Gum of *a-bu-kat* *šadî*(i)," for a man overcome with heat (*UD-DA-ŠAD-DA*), † (?), *AM*. 14, 7, 6.

(b) *šamAbukatu*, spelt out, simply : *Ghostly seizure*, anoint in oil with human skull and turmeric, *AM*. 97, 4, 16 (*šama-bu-ka-tu*). *Fumigate* with . . . [*a-b*] *u-uk-ka-tú*, †, *AM*. 80, 6, 5. *Quantities* : 3 grains, *AM*. 9, 1, 30 (*eyes*) : 7 grains, *AM*. 12, 9, 7 (*eyes*). 1 *šú*, *AM*. 41, 1, iv, 24.

Most important is the comparison in "*hul* *LI-TUR* *kima epiri asurrê*" (*BRP*. iv, 37 ; *JRAS*. 1924, 455) "gum of *LI-TUR* like dust of the wall", i.e., like carbonate of soda, *sal murale*, probably those yellow crystals which appear on tablets or bricks (*DACG*. 11). We must therefore seek in the gum of the *abukatu* such a gum as appears in the form of yellowish tears, from a pliant and convolulus-like plant.

Scammony, *Convolvulus Scammonia* L., with its gum-resin and its

¹ Erasure of whole line.

² See p. 180.

convolvulus-like stalks, used in *MT.* and in classical medicine both ext. and int., fits the gum of *abukatu* exactly. Scammony occurs from E. Mediterranean to Persia (*FJ.* i, 451): "in abundance about Marash, Antioch, Edlib, and towards Tripoli in Syria" (*VK.* 539), but I have no knowledge of it actually in Mesopotamia. "The stalks are numerous, green, slender, and angulated; they are five or six feet long, support themselves without the help of bushes" (Hill, *Useful Family-Herbal*, 338): the root is from three to four feet in length, and the stalks numerous, slender, and twining, being fifteen or twenty feet long (*VK.* 539). Rauwolff (47) says near Tripoli (Syria) he saw *Scammonium Monspelienae*, which the natives call Meudheuds, but Rhasis calls it horiziala, *Brassica marina*.

The root affords (a) *Scammony resin*, greenish-grey or brownish-green, translucent, brittle lumps, obtained by exhausting Scammony root with alcohol, and soluble in alcohol: (b) *Scammony*, brown, dark-grey, or brownish-black, irregular masses, a gum-resin obtained by incision from the living root of *C. Scammonia* L. This emulsifies in water, while the resin does not (*P.* 1060, ff.). *BMM.* 418 describes Scammony as a resin of a bright green colour.

"It is from the milky juice of the root that the scammony of medicine is procured . . . The peasantry having cleared away the earth from about the root, they cut off the top in an oblique direction about two inches below where the stalks spring from it. Under the most depending part of the slope, they fix a shell or some other convenient receptacle, into which the milky juice gradually flows. It is left there for about twelve hours . . . each root affording but a very few drams . . . in a little time it grows hard . . . It is brought from Aleppo and Smyrna" (*VK.* 539).

Its uses in medicine are particularly as a strong purgative, but the ancients used it also externally. Pliny (*NH.* xxvi, 38) says: "about the period of the rising of the Dog-star, an excavation is made about the root, to let the juice collect; which done, it is dried in the sun, and divided into tablets . . . The scammony most esteemed is that of Colophon, Mysia, and Priene." He prescribes it internally as a purgative, but says that the root is boiled down in vinegar and the decoction used for leprosy, or with oil for headache. *Diosc.* (iv, 168) prescribes it in cataplasms with flour, or on a pessary of wool in the uterus to kill the embryo, or, like Pliny, for leprosy and headache. *BMM.* 418 says that when baked it is a powerful diuretic. I have a specimen of the medical substance before me as I write, and the appearance is as of a greenish resin, powdering easily.

The modern Arabic for Scammony is *širš-al-mahmūdīyah*, and for the various convolvuli: 'ullaq, 'ullaig, muddaid, for *C. arvensis* L.; šubrum, šibrīk, *C. Hystrix* Vahl (used as a purgative by the Arabs, Burton, *Land of Midian* ii, App. iv); yarraḥ, *C. Schimperi* Boiss. (*FP.*² ii, 203, 206): 'allaig, *C. stachydifolius* Choisy (*FJ.* i, 462). None of these is connected with the *abukatu*, which would seem to be allied to the Arab. root ḥabaka "bind" (cf. our word "bindweed" for convolvulus). *Ašlukatum* (cf. Meissner, *Suppl.* 19) occurs again in a vocabulary containing also *kirētu*, and *gišrum* (Jastrow, *ZA.* 1889, 160, S. 896); as was suggested above, it looks like a -k formation (fem.) from *ašlu*, like *elammaku* and

ammanakku. The connection of ^{sam}LI-ṬUR and ^{sam}TIR_{TIR} as *kililu* suggest the convolvulus, ^{šer}LI-ṬUR as *abunnatu* "navel-string"¹ having the same idea.

^{sam}*Alagnu* (the -nu is clear on the tablet, but it is possibly a mistake) might be connected with the Arabic *ullag* above.

For ^{sam}*lapat ramannu* see p. 13.

14. ^{sam}*Kazallu* occurs thus in *MT.*: †, bray, bind on (?) (*Aš-su*) in oil, *KAR.* 182, r. 26. ^{sam}*Ka-zal-la* occurs *KAR.* 208, 22 (uncertain prescription). In the *VM.* (*Pl.* 10, *K.* 4218, *A.* 10, and *Mat.* No. 88, i, 48:

(⁴⁸) (^{sam})*ka-zal-la* (v. *lu*) | *ina lišan muš-TAR-A*

Is this for snake-bite?

Seed of ^{sam}*KA-ZAL*, *KAR.* 185, iii, 17, which occurs on p. 36 as equivalent to ^{sam}*ZID-MÁ-LAH*, *atriplex*.

15. *Sungiru*, *sungirtu* should be included here. These are the equivalent of Syr. *sangirâthâ*, a marsh plant, as was pointed out by Boissier, *RS.* 1901, 151. Ebeling (*Tod.* 16, 14) has a good note on it, quoting *VR.* 47, 52, *a* (see Langdon, *Bab. Wiss.* 44, 5), where it is equivalent to *uliltum*, and *ABL.* No. 1000, 8, where it is shown that the wild ass eats it. *RS. ib.*, 159 and *Tod.* 16, 13 give (13) *aluzin mina tel'i*, (14) *sungira ina lapti*, (15) *baqiqati ina kuzub la tehê(e) ekima*, (16) *lasama u kalama ali'i*.² The word *uliltu* looks as if it comes from *elêlu*, and therefore may be a reed-pipe (*sungiru* can hardly be connected with *σούριξ*?).

16. *Šippatu* and *kîsu*, of which the former is a reed of Makkan (*VR.* 32, 65): cf. "Marcheswân, what is thy food?" *Sungira ina lapti* (v. *lipti*) *u šippata ina ZID NU-LUH-ĤA tapattan*, i.e. *Sungira* (a marsh plant) and *šippata* in powder of *Asa foetida* (*Tod.* 18, 9). The Syr. *šeppe'thâ* (plur. *šeppe*), a reed mat, *FJ.* i, 680 may be connected. The other "meals" of the text in *Tod.* 18 consist of unpleasant substances.

This completes the first group, and we can go on to the second.

17. ^{sam}*Išbabbu*.³ This = ^{sam}*šami šêri* "plant of the desert" = [*sisatum* (?)] "horse-fodder" (^{sam}*sisatum* being ^{sam}*išbabbu eqli*, "*išbabbu* of the field," p. 4, l. 12); = "... *rabûti*^{pl} great ..." (*ib.* 14), while ^{sam}*išbabbu* ^{is}*kiri*, "*išbabbu* of the orchards, gardens" = ^{sam}*alapû*. These, and the probability that it is to be referred philologically to the Heb. *'ēsebh* "grass" (the form having a reduplication of the third radical, like *alkaktu*, *ilkaktu*, *ernintu*, *aršašû*), suggest that we have here some simple grass-like herb. This is confirmed by the equivalence ^{sam}*mallahtu*, which would seem to be connected (by sound, at least with the ^{sam}*ZID MÁ-LAH*, *Atriplex halimus* L., a spinach (p. 37) and probably is even nearer to Heb. *mallaḥ*. The Euphrates Expedition ate a kind of

¹ On the meaning of *abunnatu* see *Man* 1928, 13: *GE.* 76; Christian, *OLZ.* 1914, 397; Jastrow-Clay, *YOS.* iv, 3, 82. Here the suggestion obviously bears out the meaning "navel", but it is possible that "sexual parts" is also an equivalent.

² Ebeling's translation runs: "*aluzinnu*, was kannst du? Die *Sungiru*-Sumpfpflanze mit verdorbenem Fäulnis mit *kuzub-la-tehê* Pflanze bestreichen und laufen und alles (schen) kann ich!" *Kuzub-la-tehê*, as he points out, occurs in Gadd's *CT.* xxxviii, 18, 115. It may or may not be a plant. Cf. ^{sam}*ku-uz-bu*^{kt}, p. 4.

³ B. Landsberger, *Die Fauna des alten Mesopotamien* 66.

spinach (Ainsworth, *A.*, 36); I have myself eaten a wild spinach at Carchemish called *ḥašīš burriyah* "wild grass", which may well be the *šamšami šêri* "plant of the desert".

It is rare in *MT.*; *Pl.* 29, K. 4566, 21, and *KAR.* 203, i, 65, give it as a drug for *ašî* (pain) to be applied cooked. *šamš-iš-[bab]-tum* occurs in an omen between *šama-[la]-pu-u* and *[šam]a-ra-an-tum*, *TR.* ii, 60, r. 13.

šamSisatu, i.e. *šamšabtu eqli* "i**š**abtu of the field" must be from *sisu* "horse", i.e. fodder, like *aspasti šar* (*MB.* r. 62) Syr. *'aspastâ, medicago sativa* L., from the Persian *aspa* "horse" (*FJ.* ii, 463; Nöldeke, *ZDMG.* 1878, 408).

There is also "*šamšabtu* like **šhašhur âbi*" (oak-galls, p. 255) followed by "*šamšûtum* (excrecence) like *šamšabtu*, its fruit green and hard", and it is not impossible that these two entries are connected with each other; the "galls", "excrecences", "green and hard", suggest the *Salvia pomifera*, the "apple-bearing sage", which is a native of various parts of the Levant. This is a plant "remarkable for being liable to the attacks of an insect of the *Cynips* genus, which produces upon their branches little protuberances similar to galls upon the oak, but much larger. These morbid growths contain an acid aromatic juice, and on this account are valued by the inhabitants of Crete as an article of diet" (*PC.* xx, 373). Belon (Rauwolff, *Travels* ii, 4) mentions it as coming from Mt. Ida in Crete, and carried to all markets (note *ib.*, *Cat.*, at end, 42 "quod mirum, cum nihil aliud sint quam Gallae"). *FCH.* 80 (see its *pl.* 54) describes *Salvia triloba* L. (Arab. *maryamîyah*) as having galls on it produced by some fly, probably *Aulax* sp. "These, coming on the top of the plant and being in shape like little apples, are mistaken by the people for its fruit . . . they are picked while still soft, peeled and eaten." It quotes Gerarde, ed. 1936, 766, as saying of the *S. cretica pomifera*: "it beareth excrecences or apples (if we may so term them) of the bigness of large Galls or Oke Apples."

Allowing, therefore, that *šamšabtu* is some form of *Atriplex* or spinach, we can go on to *šamKANKAL*, the equivalent of *terigtu* (root *arâqu* "be green", i.e. "green stuff") and *nidutu* (Syr. *nedhyâ* "sprouting"), *Br.* 9761, 9759. *KAR.* 165, 12, speaking of a lamb eating, says *imaqut A-GAR-GAR-ma šamKANKAL i-laḥ (?)-ḥi (?)* "the dung falls and *šamKANKAL* sprouts (?)": elsewhere, in *Šurpu* v, 192, *šamKANKAL* is described as *binrut šamme*: "produce of herbage"; it springs up in temple-ruins (Langdon, *BE.* "A", xxxi, 6, 10) or on the banks of a canal (*atappi, Maqlû*, iii, 178). It is also quoted in comparisons with cleanliness: "I shall be clean like *šamKANKAL*" (*Maqlû* i, 25: cf. King, *Magic*, No. 11, 25: *kima šamKANKAL ubbibanni*), and there is a tabu against "cutting thicket, woods, reeds, pulling up *šamme* (grass) (and) *šamKANKAL*" (*Šurpu* viii, 33). The special form *šamKANKAL maial^aEa* (or perhaps *^aIštar*,¹ it not being certain which) *šamKANKAL*, "the couch of Ea (or Ištar)," if Ea be correct, indicates some kind of herbage submerged by the daily tidal ebb and flow of the canals in S. Babylonia, quite an ordinary occurrence there. I have often seen the grass on the side of the canals thus submerged. This frequent comparison with cleansing (for *šamKANKAL*, as distinct from

¹ *Maial^aIštar* "couch of Ištar" is said of the *[šame]lpitum šadî*, p. 4 C 41.

šamme), and its connection with *Ēa* as water suggests the coarse grass flooded by the tides, which the Arabs call locally *ša'ir*.

But *šam*KANKAL also grows on salt lands; "if *ina eli tābtī šam*KANKAL appears" (*TR.* ii, 51, rev. 1); it is also equated with *šam ki-di* (*p.* 4 (D), l. 16), i.e. "plant of the *kidi*" (the steppe, or what the Mosul Arab would call *chól*), and there is an omen: "When *šam ki-di* appears in a city, that city will go to ruin" (*TR.* ii, 51, obv. 35: Gadd, *CT.* xxxviii, 5, 139). It is given (Boissier, *RS.* 1896, 136, 16) as one of many plants in ext. use against sorcery.

*šam*Arantu, one of the equivalents of *šam*KANKAL, has a wider significance than merely coarse grass. *P.* 6, (K), l. 11, makes it equivalent to *šamanumulu* "spurge" (a green weed), and *ib.* 10 *šamlulutu*, the green flower of the spurge. (J) makes *šamrānu* (fennel) *šamarantu*, *šamalamū* (*p.* 6), and *šamme* *ḥa^btā* all equal; and (K) gives other equivalences. One of the most important values is *šamlardu*, which was compared to *nard* by Holma, *Kl. B.* 75 (cf. Tallqvist, *Maqlū*, 118). This is also used as a comparison for cleanliness: "I shall be clean, pure, like *lardu*" (*Maqlū* i, 26): and cf. [k]imū šE-BAR larda kimū mē^{pt} ūrana lišabši "in the place of barley may (Adad) cause *lardu* to be, in place of water may he cause salt efflorescence" (King, *Boundary Stones* 62, 11-12).¹

Nard "is the root of the ginger-grass, *Cymbopogon schænanthus* . . . From the root of this grass was derived an oil which was used in Roman commerce medicinally and as a perfume, and as an astringent in ointments. This is no doubt the *nard* found by the army of Alexander on its homeward march, in the country of the Gedrosians, of which Arrian says (*Anabasis* vi, 22): "This desert produces many odoriferous roots of *nard*, which the Phœnicians gathered; but much of it was trampled down by the army, and a sweet perfume was diffused far and wide over the land" (Schoff, *Periplus* 170). The Arabic *sunbul* "nard", *Agrostis verticillata* Vill., is a grass growing in Hauran and Mesopotamia (rivers) and is used as fodder (*Von Opp.* ii, 388; *IB.* 1237; cf. *FP.*² ii, 729, *sanbolah*).² *Mat.* 86, 7, 14 gives *šam*DÜG-GA = *zig-qu* = *šam*la-ar-d[u]: here *šam*DÜG-GA suggests the sweetness of the *lardu*, but *zigqu* is difficult.

With *arantu* we might compare the Syr. *ʾāmīrā* "grass" with a metathesis of *m* and *r*, with *m* changing to *n* before *t*,³ like *pēntu* = Heb. *pēhām*.

18. *šam*Alapû, *šam*A-MEŠ-ŠA₅-A, *šom*ŠA₅-A-A-MEŠ. It is a difficult question whether *šam*alapû or *šam*elpitu is the correct cognate for the Arab. *ḥalfā*,⁴ *Poa multiflora* and *P. cynosuroides*, a high, coarse grass growing near water (Lane, *Dict.* 628: *P. Persica* Trin. was seen at *Qala'ah Sherghat*, Herzfeld, *Beih.* 35). The Aram. *ḥulpā* (with which I connected *šam*elpitu in *PSBA.* 1906, 225, as also did Holma, *Kl. B.* (1912, 92), the Arab. *ḥalfā*, is given the value of *Eragrostis cynosuroides* Roem. et Schult.,

¹ Meissner, *Beitr.* ii, 10, would make *šamarantu* the caper, which I think is very unlikely. [See also B. Landsberger, *Fauna* 65 f.]

² I was given *šumbelān* as the Arab. name for a water-plant growing below the surface in Basrah, and eaten by cattle.

³ When such a change occurs the *t* usually becomes *d*. . . *a-ra-an-di* occurs *AM.* 33, 1, 38.

⁴ I am now inclined to doubt that the Arab. *ʾalaf* "hay" can be an alternative possibility (*AH.* 37).

FJ. i, 699, and *Cladium mariscus* R.Br., *ib.* 702; more particularly the Syr. *ḫālāphā dh^c-yammā* is *Cymbopogon Schenanthus* Spr. (*FJ. ib.*). Apart from its possible philological connection with the Arab. *ḫalfā*, the groups ^{šam}A-MEŠ-ŠA₅-A and ^{šam}ŠA₅-A-A-MEŠ indicate it definitely as a water plant, as also does *šammu nāri*. The passage in *Kū.* i, ii, 22 is equally definite; . . . *iklita ki mē ḫiriti alapā nadū ēnā^u-šu* . . . "darkness as the water of a ditch brings (?) *alapū*, so do his eyes . . ." (a prescription for eyes) tells us little more: here the *alapū* might be fed by the ditch as it grows on the bank, or it might be a water-weed obscuring the canal-bed. On the other hand, we have the equivalent *šamišbattu škirī* "garden grass" or similar, which would indicate a plant of dry land, just as *šamilat eqli* probably does.

A second clue lies in the words ^{šam}ḫami nāri, *ḫammu ša bēratī*, ^{šam}miḡti *ḫammu*. I doubt if it can be connected with the Syr. *ḫammimā* "hay" (from *ḫamm* "be hot", the Assy. root for this being *amāmu*). Gadd, *CT.* xli, 45, 11-12 gives the equivalence *a-la-pu-u*: *ḫa-am-mu*, . . . KI-NĀ^dNINI: . . . (?) -ū-tū *ma-a-a-al-tū* ^dIštar. Landsberger (*Fauna*, 139) has a good note on it.

"(a) *ḫāmu* [sic] ein Synonym von *ḫuṣābu*: *ḫāmu u ḫuṣābu* etwa 'Grashalm und Blatt' als Symbol für minderwertigste Dinge: *Bogh. St.* 8, S. 16, 51; dazu Kommentar von Weidner mit Verweis auf K. 2022, Rs. 1, 3-7 (*CT.* 18, 45): *ḫāmu* und *ḫuṣābu*; Korn einschliesslich seines *ḫāmu BB* Nr. 260, 13, u. 23: ein Schwein trägt *ḫāmi* in das Haus, bzw. aus dem Hause: *CT.* 38, 47, 50 = cbd. 45, 50 f. = *CT.* 30, 30, 8 unten; Kommentar dazu *CT.* 41, 31, 31: *ḫa-mi* = *ḫu-ša-bi*; *šammu* = *ḫu-ša-bi*; dieses *ḫ.* auch Thompson, *Herbal* 26, 591; *ú* = *ḫa-[mu]*, AN.BA = [.,] *CT.* 41, 49, ii, 4 f.; *eqlu ḫa-mi ma-li CT.* 12, 2, ii, 58.

"(b) *ḫammu* [sic] des Wassers: ein Fluss wird gereinigt durch *nasāḫu* der *miḡtu* und *šutbū* der *ḫammu BB* Nr. 43, 29, vgl. dazu *šammi miḡti ḫamme* HWB, 282; Thompson, *Herbal* 26, 594; durch diese Liste Z. 593 in Beziehung gesetzt zu *alapū* 'Alge'¹; Wasser eines neu gegrabenen Brunnens *ḫa-am-ma na-du-u CT.* 39, 22, 8." His footnote¹ runs: "Für diese Ansetzung vgl. *CT.* 29, 14, 12 (hinter *ziqin nāri*); *alapū ša pan mē* 'der Wasseroberfläche' *AMT.* 1, 2, 17; vgl. auch *alapū* = *ḫammi* [. . . .] *CT.* 41, 45, 11; hat nichts mit *elpetu* 'Schilf' zu tun.—Z. 595 [of the Herbal] ^{šam}ḫammu *ša eleppi* = ^{šam}ḫammu *ša bēratī*, vgl. *RA.* 18, 4, Nr. 7, ii, 10 und 5, Nr. 9, iii, 10."

To this we may add the sign U-MU-UN (*Br.* 10275) (*KIL* containing U-A) = *ḫammu ša mē^u*, *miḫṣu ša mē^u*, *ḫammu*, *pānu*, and "ditto (U-MU-UN)" (*D.* 509) = *ḫammu*, *CT.* xii, 26, ix-vii, 10 ff. *Ḫammu* occurs twice in Scheil, *RA.* 1921, 4 (i, 6 and ii, 10, the latter followed by: ., *elippi*).

Also to Landsberger's examples we may add an important epigraph of Sennacherib (iii, r. 4, 4, 1 ff., Luckenbill, *Annals of Sennacherib*, 156).

¹ On the *alga* see Rauwolf i, 116. It is possible that the sign *Br.* No. 10263 ([] *umuna*) (a "pool" containing the sign *PAR* "white", and equal also to *alapū*) might be intended for the little water-ranunculus, with its white flowers, growing plentifully at Basrah in 1915, but I am inclined to doubt it. *PC.* (s.v. "Baghdad") mentions the "floating crowfoot". Mr. W. J. Rutherford has suggested to me that *alapū ša pān mē^u* of *AM.* 1, 2, 17, 20, used in some head-trouble, may be a kind of duckweed, since Culpepper (*Eng. Phys.*, 1814, 117) gives it as effectual to help inflammations, either by itself or mixed in a poultice; good for sore eyes, etc. "The fresh herb applied to the forehead easeth the pains of the headach coming of heat."

ina šadē²¹ dannūti ša baṭṭi šari' hāmu huṣabu ina libbi laššuni 'gupni dannūti ša 'e-'ri ina libbi šeru'uni "in the massive mountains wherein are neither living thing nor vegetable nor hay nor chopped straw, wherein tough brambles grow". For huṣabu, see p. 18: 'e-'ri, as Luckenbill apparently saw, is not the Heb. ya'ar "wood", but the Syr. ya'rā, vepres, herba inutilis. Cf. Mat. 6, 18, e-'ru, with raḥbu beneath it.

The vocabulary P. (p. 7), however, gives so many words describing samalapū as a water-plant¹ (particularly like grass) that we may reckon its philological equivalent to be definitely the Arab. ḥalfā, and it may well represent that species of *Mariscus* which Ainsworth (A. 134) describes as *elongatus*, a solitary plant acting as umpire between the liquid and the solid world in S. Babylonia. The sheath at the base of the leaves is shut up, and the average length of the culm or stem is about 2 feet. It presents a rich green carpet and a fine verdure in the flowering season (May). The roots are fibrous. (Ainsworth says (A. 176) that to the north of Fuch, about 15 miles from the embouchure of the river, the *Cyperaceæ* become more abundant in species, but *Mariscus elongatus* still predominates.)

A final equivalent, samakak nāri might be connected with the root ekeku, from which ikkitu "itch" (Syr. hekk, scabies) comes; (PRSM. 1924, 2). The same Syr. root (hakk) gives ḥākhākhā, also scabies, and urtica "nettle", although there seems little to connect the *Mariscus* with such a plant as the latter.

B. GRASS, RUSHES, REEDS, CONVULVULI

1. GI, qanū, reed.
2. GI-DÜG, qanū tābu, *Acorus calamus* L., Sweet Reed.
3. GI-BU, p. 21.
4. GI-ŠUL-ŠĀR, qān šalali, "reed for weaving."

1. GI, qanū, the ordinary simple word for a reed, such as were placed between bricks (Cyrus, Strassmaier, 255). The "worm from the middle of a reed" (tultu sa lib qanū) is used for toothache (AM. 105, 1, 16).

For gu-ur [ga]nū, the pith, see above, p. 12.

Qanū simply is used for a reed-pen: aban qanū (DACG. 191) "stone of the reed(-pen)" is pumice, with which the pens were sharpened. (On Indian pens see J. H. Burkill, in the *Agricultural Ledger*, Calcutta, 1909, No. 6, iii ff., quoted FJ.² i, 677.) Both BIL-LĀ (vinegar) and ŠE-RŪ (shoots) are used alone for removing šimmati (poison) ("bray, anoint in oil", according to a new Nineveh tablet). For the vinegar see p. 10, where "vinegar of urbate" is mentioned.

2. GI-DÜG, qanū tābu, occurs thus in MT.:

(1) Simply: Ext.: Ears, alone, insert in oil, AM. 33, 1, 25. Feet, †, [apply] hot, AM. 69, 2, 10: †, rub, AM. 70, 7, i, 11. Head (temples), †, poultice, CT. xxiii, 39, 7. Muscles of hands and feet, †, [use uncertain], AM. 98, 3, 18. Cough (white or dry phlegm), †, poultice, after rubbing with cedar-oil, AM. 50, 3, 8: cf. 80, 1, 19. Stomach, †, anoint (?), AM. 40, 5, 7, uncertain trouble, in the case of a child, anoint († (?)), AM. 96,

¹ See note 1, p. 18.

2, 8. *Flesh* with *šimmatu* ("poison") and *rimutu* (lassitude), †, bathe, *AM.* 52, 5, 4. Uncertain, †, bathe, *AM.* 94, 2, ii, 10.

Int. (doubtful): *AM.* 94, 2, ii, 10. *Breast* and *loins* (?), perhaps [GI]-ŠĀR, †, *AM.* 51, 7, 6.

Fumigate: *Ears*, †, *AM.* 33, 1, 31, *dup.* 35, 1, 7. *Šimmatu* ("poison"), †, *AM.* 91, 1, 9.

Enema: †, *AM.* 43, 6, 6: 56, 1, 4, *r.* 6, and prob. 10: 94, 2, ii, 5: *KAR.* 157, *r.* 13.

Quantities: 10 shekels, *AM.* 84, 1, 3: *KAR.* 157, 27 (†, enema): 2 shekels, *AM.* 41, 1, iv, 13: 5 carats, *AM.* 10, 2, 3 (to be drunk?).

(2) *Oil*: (*šamnu*), var. IĀ-BĀR-GA, as medium, *AM.* 54, 3, 5: *sorcery*, anoint with other oils, *AM.* 87, 1, 8, 12. *Ears*, *AM.* 35, 2, 11, part *dup.* *KAR.* 202, iv, 12.

(3) *ZID* (powder): poultice, †, *AM.* 19, 8, 4: †, *KAR.* 192, *r.* iii, 156.

(4) *Haṣḥallatu* (acid juice): †, bind on, *AM.* 72, 2, *r.* 5.

(5) . . . *ḥanṣā ša lib qanî tābi*, *AM.* 64, 1, 15 + 37, 1, 5.

A value *passu* is given for GI-DÜG-GA (*D.* 85, 392, *a*).

A great many of the characteristics of this drug would lead us to identify it with *Acorus calamus* L., in spite of certain difficulties. *FJ.* i, 693, on the other hand, in discussing the Heb. *qānēh haṭṭōbh* (which should philologically be the same plant), is inclined to think this association with *A. calamus* a mistake, and would, with Ascherson, make it *Cymbopogon*. Again, Post (Hastings, *DB.* iv, 213) says that *A. calamus* is not indigenous to Syria or Palestine, nor can it be identified in the Lake of Homs or the swamps of the Upper Orontes, where Pliny (*NH.* xii, 48) places his "sweet-scented calamus", which, however, according to Fée (in Bostock's Pliny, iii, *p.* 144) is not the *A. calamus*, which is Pliny's *Acoron* (*NH.* xxv, 100).¹

This latter, the *Acoron*, which grew in Colchis, Galatia, Pontus, and Crete, seems certainly to be the *A. calamus* (Fée, *ib.*; *FHP.*² 676); Jeremiah's description of the *qānēh haṭṭōbh* as coming from a far country would certainly be in accordance with this. The rhizome of the plant is imported into India from Persia (*CPI.* 24): it grows abundantly in Kashmir ("and the same is true of most if not all of the warm temperate tracts", *ib.*). It is one of the commonest bazaar medicines in India (*BMI.* 13), which would at once allow us to accept it as an import into Mesopotamia, although I must admit I have no recollection of seeing it either growing or offered for sale in the bazaars.²

GI-DÜG occurs between sixty and seventy times in *AM.*, about half the number of times that we find *burašu*, the commonest drug of all. Its use in *MT.* certainly coincides with that of *A. calamus* in India in many ways, where the root has been employed in medicine since the time of Hippocrates (*IMP.* 1350). Just as the root of *A. calamus* is used in India for rubbing on the chest of a child with catarrh (*IMP.* 1350 *ff.*), so is GI-DÜG used to rub on a child (disease uncertain). In India it is used ext. for bruises or rheumatism (*ib.*) or as a poultice (*BMP.* 536); in Assyria

¹ Chesney, *Expedition* i, 537, speaks of a "sweet honied reed" in Syria.

² Sugar-cane is out of the question. This occurred in the neighbourhood of Makrân and Khuzistan (end of first millennium A.D.), Heyd, *Hist. du Commerce du Levant* 38, quoting Ibn Haukal, *Journal of R. Asiat. Soc. Bengal* xx, 154, 161; xxi, 55.

GI-ŠÁR was applied hot to the feet, used on hands and feet, and rubbed on for a cough. GI-DÜG as a fumigation for "poison", and ears, is paralleled by the use of the rhizome of *A. calamus* to fumigate painful piles with bhang and ajowain (*IMP. ib.*). *A. calamus* in large doses (30 gr. and more) acts as an emetic (*IMP.* 1352) which would certainly seem to be indicated by the very small doses (5 carats) of GI-DÜG prescribed by the Assyrian doctor above (*AM.* 10, 2, 3). Actually *A. calamus* is employed internally for flatulence, dyspepsia, and colic; in India for fever, and as a useful adjunct to tonic or purgative medicines (*BMP.* No. 279). Pomet (*HD.* 53) says that the *Calamus aromaticus* is used for diseases of the head, brain, nerves, womb, and joints. It is also used for catarrh, and ext. for bruises and rheumatism (*IMP.* ii, 1350 ff.).

It will be noted that *qanû tâbu*, like the *A. calamus*, has a special essential oil of its own, an essential oil being prepared from the *Acorus*-rhizome (*FHP.*² 678) or from the leaves, used in England in preparation of a hair-powder (*CPI.* 24).

The *ḥaṣhallatu*, "inspissated acid juice" (see *Ambix.* 1938, ii, No. 1, 6, n.⁵) may here refer to the aromatic vinegar of the *Acorus* used in medicine (*MPB.* ii, 322: *BMP.* No. 279). It is just possible that the product "*ḥanšâ* of the heart of *qanû tâbu* (p. 20) may be the same, on the possibility of *ḥanšâ* being a doublet (borrowed?) of the Assyrian *enšu* "vinegar" (Heb. *ḥēmēš*): but it seems unlikely.

A talent (about 60 lb.) of *qanam tâbam* is mentioned on an OB. letter (Kraus, *MVAG.* 36, 1932, 1, *Altbab. Briefe*, No. 3): cf. GI-DÜG-GA, Kassite letter, Radau, *BE.* "A", xvii, 142.

3. GI-BU.

It is uncertain if we are dealing here with a medicinal plant. Apparently the PA (tops) of it occurs in an apothecary's list, *ADD.* 1042, where it is included among PA of pomegranates, of grapes (?), of ⁴A-AM (lemon (?)), mulberry, and with various plant-drugs (⁵*saṣadanu*, ⁵*saṣašumtu*, ⁵*saṁlišan kalbi*, ⁵*saṁalamû*, ⁵*DIL-BAT*, *Asa foetida*, roses, cedar, cypress, juniper, etc. (text re-examined, but the PA of it appears to be an unusual expression). ⁴GI-BU occurs early (in Deimel, *Orientalia* xvi, 60, 70), and an omen is derived from its springing up in a field in a town, which undoubtedly shows that it is a plant (Gadd, *CT.* xxxix, 4, 26). It may be, as Deimel (*l.c.*) suggested, "bamboo," which would then explain the equivalence GI-BU = *malilu* "flute"; and perhaps the prescription for a suppository in *KAR.* 201, 20, which ends with . . . -da ⁴GI-BU (in the preceding parallel text *allanu*, "suppository" is used) *teppuṣ(uš) tûg^{hi-a} tu-la-ba-āš ana ku-šû tašakan[(an)]* "a GI-BU thou shalt make, wrap in cloth, insert in his fundament", perhaps as a means of introducing drugs into the anus, the cloth being added to ease the insertion.

GI-BU may perhaps be read *qân markas* "reed of knot(s)", i.e. the knots on the bamboo.

4. GI-ŠUL-ŠÁR, *qân šalali*.

This occurs thus in *MT.*:

(1) *Simply*: *Ext.*: To assuage affected muscles of *hands* and *feet*, †, *AM.* 98, 3, 18: to rub feet, †, *AM.* 69, 2, 5. *Blow* (*nūšitti*) on the "middle" (pelvis), †, poultice, *AM.* 79, 1, 12. Bathe, †, *AM.* 52, 5, 8: 98, 3, 3.

- Int.*: "while yet green," †, *AM.* 23, 4, ii, 6.
- (2) *Seed*: *Poultice*, †, *AM.* 95, 4, 5.
- (3) *UR (root)*: for "poison" (*šimmati*) bray in cedar-oil, †, *AM.* 92, 6, 12.
- (4) *ŠE-RÚ (shoots)*: *Feet*, †, apply, *AM.* 74, iii, 3. *Blow (mišuttu)*, †, *AM.* 82, 2, 5 (*GI-ŠUL-ŠÁR dunqu*): †, *KAR.* 182, 19, "Poison of all limbs," †, *AM.* 91, 1, 6 (*cf.* Scheil, *RT.* xxiii, 1891, 134 ff.). To remove *šimmati* (poison) bray, anoint alone in oil (new Nineveh tablet). *Sorcery*, with 39 others, drink in wine or beer, *AM.* 89, 1, 7.
- (5) *PA (tops)*: *Swelling*, †, *AM.* 73, 1, 12.
- (6) *Gu-ur (pith)* used with *ŠE-RÚ GI-ŠUL-ŠÁR*, *ŠE-RÚ GI* and *gu-ur [G]*, to anoint temples (*CT.* xxiii, 41, 12 (*dup.* 20, 1, 44)).
- (7) *BIL-LÁ*, vinegar, to remove *šimmati* (poison) bray, anoint alone in oil (Nineveh tablet).

The word *šalali*, in spite of the change from *š* to *s* must be connected with the Heb. root *salal* which appears in the Heb. *sal* "basket", Late-Heb. *sišlāl* "plait". The change of *š* to *s* is exactly paralleled in the Heb. *sullām* and the Assyr. *mušlalu* "stairway".

Here, then, we have *qān šalali* as "reed for plaiting", i.e. for making rush or reed mats, ropes, etc. At the same time we find *qān šalali* in a recipe for washing in such a way as to suggest that it is a scent. Which particular reed or rush it may be is difficult to say, but probably a *Cyperus* would fulfil the needs: the root of *C. rotundus* L. is regarded in India as diaphoretic, astringent, diuretic, and is used for disorders of the stomach; the fresh tubers are applied to the breast as a galactagogue. Arab. and Persian writers prescribe the drug ext. to ulcers (*IMP.* No. 1328). Equally the common rush (*Juncaceæ*) makes chair-bottoms, mats, and basket work, and the pith is used for lamps: the *Typha angustifolia* (bulrush) is used in N. India for ropes, mats, and baskets; *Scirpus* and others of the *Cyperaceæ* make chair-bottoms, mats, and thatch (*EB.* xivth ed., 19, 673).

Its properties as a cleansing plant stand out in the following: iv *R.* 26, 7, 30 ff. (the directions of Ea to Marduk) for a man suffering from "the heat and cold not good for the flesh". A vessel is to be filled with water from a pool, untouched by hand (washing), and tamarisk, *mastakal* (soapwort) *qa-an ša-la-li uḫribu qarnanu* (*Salicornia* alkali) and "mixed" (*mazû*) beer put therein, and then a ring of *šariru*-gold; the man to be given pure water to drink, and then the water thus prepared is to be poured over him: then turmeric root is to be pulled up, pure salt and pure alkali pounded, fat of a crane (*kurkî*) brought from the mountains added to this, and the patient's body rubbed seven times with it. Similar washing texts, including *qān šalali* with various other washing drugs (see p. 39) occur in *CT.* xvii, pl. 31, 30 ff. (*Devils*, ii, 107): *CT.* xvii, pl. 38, 30 ff. (*Devils*, ib. 141).

The question, therefore, is only whether it is a reed or rush calcined to ashes and thus used in the soap, or whether it is a scented reed added to make the soap fragrant. I am inclined to think the latter. It will be noticed that drugs indicated by the det. *riq* are not included in these soaps, which would demand a scent soluble in water.

C. PLANTAIN

1. ^{sam}EME-LIK-KU, *lišan kalbi*, *Cynoglossum officinale* L., probably originally.
2. ^{sam}UR(ÚR)-PI-PI, *Plantago* sp., probably originally. Both certainly composed in ancient times.

1. (A) Pl. 20, x-ix, 16 ff. :

^{šam} šîri	^{šam} lišan kalbi
EME ¹ šîri	^{šam} lišan kalbi
² šêr kalbi šinni kalbi	³ GİR-PAD-DU kalbi lišan kalbi
GISAL-EN-NA-ŠAR	li-ša-an kal-bi
20. Ú — ŠAR	^{šam} lišan kalbi
^{šam} (?) ⁴ qu-ut-	^{šam} lišan kalbi
.	^{šam} lišan kalbi
^{šam} . . . . .	. . . . .
^{šam} . . . . .	. . . . .
25. ^{šam} ?-RU . . ut-liš	. . . . .

Lišan kalbi ŠAR occurs in MB., r. 60.

^{šam}*Lišan kalbi* occurs thus in MT. :

(1) *Simply: ext.: Swelling*, †, bind on in oil, AM. 18, 5, 7 + 73, 1, 33. *Hand of Ghost*, †, anoint in oil, AM. 97, 4, 22. After *childbirth* (local trouble), †, apparently apply to uterus, KAR. 195, r. 17. Amulet, alone for snake- or dog-bites, wear round neck, Scheil, RA. 1918, 75, 11.

Int.: Childbirth (speedy), †, drink in beer, AM. 67, i, iv, 15, 17, dup. KAR. 196, iv, 22, 24 : †, drink in LÛ-TIN-NA-beer, AM. 67, 1, iv, 6, dup. KAR. 196, iv, 10. *Stomach*, †, drink, AM. 42, 5, 7. *Virility-charm*, (†(?)), drink, Liebesz. 50, ii, 1. *Urinary trouble*, †, drink, Lutz, AJSL. 1919, 80, 20 : alone in *kurunnu*-beer, drink, ib. 81, 45 : alone with two kinds of oil, drink, KAR. 155, 13 : †, in wine, milk, or *kurunnu*-beer, drink, ib. 18. *Strangury*, †, probably drink, AM. 59, 1, 15. *Jaundice*, (with another ?), drink in beer, Kü. iii, iv, 19.

"Green," alone, drink with rose-[water], AM. 49, 1, 11, catch-line of AM. 80, 1, 1 (the expression is not the usual "while it is yet green", but simply "green") : "while it is yet green," boil it like beans, and drink as a posset, alone, for a cough, AM. 80, 1, 8.

(2) *Seed: ext.: Temples*, †, poultice, CT. xxiii, 39, 2. *Scab on head*, †, AM. 1, 2, 10 (in rose-water), 14 (in oil). *Feet*, †, bind on, AM. 74, 1, iii, 9.

¹ I think my copy must be wrong, and I have followed II R. 42, 4. [Original reads EME.]

² Cf. Pl. 37, K. 14120, 3.

³ Re-examined: sic.

⁴ Uncertain.

Lungs, †, poultice, *AM.* 55, 1, r. 5. *Swelling*, †, in rose-water, *AM.* 79, 1, iv, 6 (+ 18, 5, r.). [*Pustules*], †, anoint with oil, *AM.* 7, 4, 15.

Powdered seed, applied locally, †, [blisters or sim.], *KAR.* 192, r. 2, 18.

Int.: *Strangury*. †, drink, *AM.* 59, 1, 27, 40. *Retention*, (*hinqti*) probably of urine, †, *AM.* 59, 1, 13 : 60, 1, 4, 11 : 89, 4, 8. *Stone* (or sim.), † (?), drink, *AM.* 66, 11, 14. *Pelvis*, with urinary or venereal trouble, †, drink, *KAR.* 193, 4 (cf. 22), cf. *AM.* 63, 1, 5. For NI-NE (trouble in menstruation), †, pour into woman's urinary passage, *KAR.* 194, iv, 11. *Stomachic*, drink alone (?) in wine, *Kü.* ii, iii, 27.

Fumigate: dry, powder, †, for "poison" of limbs, *AM.* 91, 1, 8.

Quantity: . . ŠI-ŠÁ-GAL-LA, †, *KAR.* 155, ii, 3.

(3) *Root*: *Mouth* or *tooth* (KA-DIB-BI-DA), with anemone in *kurunnu-beer*, drink, *AM.* 78, 1, 21 + 28, 7, 18, *dup.* 23, 2, 9). In *pelvis*, prob. urinary (cf. l. 14), uncertain if int. or ext., †, *AM.* 63, 1, 5. *Jaundice*, alone, drink, *KAR.* 203, iv, 62, *dup.* Scheil, *RA.* 1916, 37, 32 (*tanabal mē*²¹ . . .): alone, drink in beer, *Kü.* iii, iii, 23. *Stomach* ("which, when thou rootest it out, has not seen the sun"), alone in wine, drink, *Kü.* ii, iii, 25 (cf. Lutz, *AJSL.* 1919, 82, iii, 69, simple *šamlišan kalbi* "which, when thou rootest it out, [has not seen] the sun", dry, bray, drink alone in LÜ-TIN-NA-beer for stone in the kidney.

(4) ŠE-RÚ (shoots), prob. liver, uncertain, *Kü.* iii, ii, 7.

(5) *Water*: *Eyes*, †, apply in copper dust (or water of *Lepidium*), *AM.* 11, 2, 28. *šamlišan kalbi*, a drug for a cough (*hahi*), squeeze its waters . . . , drink, *KAR.* 203, iv, 47 (cf. 35, *dup.* D.T. 136, Pl. 31).

Next we can consider the indications of *šam*UR-PI-PI :

K. 9182 (Pl. 33) + 79-7-8, 188 (CT. xviii, 21) (joined by Langdon and published by him in *RA.* 1916, 33, see also Meissner, *MVAG.* 1904, 3, 19): Pl. 4, ix, 9 ff. : and cf. *Mat.* 86, 7-9, 1 ff. (see below) : cf. also Pl. 35, K. 14111 :

	<i>šam</i> dDÌM-ME	<i>šam-me la-maš-ti</i>	<i>šam-me tur¹-ti</i>
10.	<i>šam</i> KA-MUŠ-NI-KÚ-E	<i>šam-me</i> ² <i>pa-rit-ti</i>	<i>hal-bu-uk-ka-tum</i>
	<i>šam</i> AM-SI-ĦAR-RA-NA ³	<i>ka-zal-lu-ru</i> ⁴	<i>uz-na-na-tum</i>
	<i>šam</i> UR-PI-PI	[ú-zu]-un la-li-e :	"
	<i>šam</i> UR-PI-PI	[a-r]i-ba-nu ⁵	<i>šepá e-ri-b[i] (?)</i>
	<i>šam</i> ÜR-RA	[ha]-hu-ú	"
15.	[<i>šam</i>] -lú ⁶	[li]-biš ⁷ -tum	"

¹ *giḫirti* (*ti*) (?).

² So Pl. 4, K. 4182, *pa-[rit-ti]*.

³ Pl. 4, my copy *RI M*, I expect in error for *NA*. [Original reads *NA*.] *šam*AM-SI-ĦA-RA occurs, Pinches, *CT.* vi, 12, 40, b.

⁴ I cannot think that the *šam*ka-ni-ib-tu as equivalent for *šam*AM-SI-ĦAR-RA-AN is right (Langdon, l.c., 34, quoting from p. 31), *šam*Kanibtu is unknown elsewhere.

⁵ I think Langdon is incorrect in reading *uz-na-nu*.

⁶ *Mat.* 88, v, 27 (see p. 452) gives *šam*rigerin.

⁷ *Mat.* 86, bil.

Mat. 86, 7-9, 1 ff.:

šam ¹ NU (?) -MAL		
šam ² EL-E-NE	šam-me t[e-lil-ti] ¹	
šam ³ šam-ra-nu	a-ra-an-tú	
šam ⁴ UR-PI-PI	ú-zu-un la-li-e (?)	
5. šam ⁵ UR-PI-PI	a-ri-ba-nu	
šam ⁶ ÜR-RA	ha-hu-ú	
šam ⁷ riq ⁸ ERIN (?) ²	li-bil-tum	
šam ⁹ GÚB-GÚB-BI-ZI-DA	da-da-ru	kur-k[i (?)]
šam ¹⁰ AŠ-PI-PI	ar-da-aš-lum	
10. šam ¹¹ d ¹² İM-ME	šam-me la-mas-si	šam-me t[ur-ti]
šam ¹³ KÁ-MUŠ-NI-KÚ-E	„ pa-rit-ti	hal-bu-u[k-ka-tum]
šam ¹⁴ MUŠEN	ku-pa-tum	šam-me man (?) -da (?) . . .
šam ¹⁵ MUŠEN	šam-me iṣ-ṣu-ri	tu (?) -Da-t[u (?)]
šam ¹⁶ DÜG-GA	ziq-qu	la-ar-du

Mat. 88, 5, 18:

šam[ŠE]š (?) ³ šam(?)iṣ-ṣur	šam ¹ la(= tu)-zu(= ba)-tu
šam ² [t]u-ba-tu	šam ³ iṣ-ṣur tu-ba-q[i]
20. šam ⁴ EL-E-NE	šam ⁵ te-lil-tú kal-li (?) . . .
šam ⁶ KA-MUŠ-NI-KÚ-E	šam ⁷ pa-suk (!)-t[i]
	šam ⁸ mu-ka-
šam ⁹ UR-PI-PI	šam ¹⁰
	šam ¹¹
šam ¹² „ a-ri-ba-nu	šam ¹³ šepá ¹⁴ [e]-ri-b[i]
šam ¹⁵ ÜR-RA ha-hu-u	šam ¹⁶ „
šam ¹⁷ riq ¹⁸ ERIN	šam ¹⁹ li-biṣ-tú: šam ²⁰ „

VAT. 9000:

šam ¹ UR-PI-PI	šam ² me-me-tú
šam ³ ša-lam a (?) ⁴ -zi	šam ⁴ „
šam ⁵ šá-mu mar-tu	šam ⁶ „
šam ⁷ AŠ-ME-ME	šam ⁸ „

That this follows the *saḥlānu*-group and precedes the *šimaḥu* group, is certain from VM., Mat. 88, ii, 15 where

¹⁵UR-PI-PI | ina me-me-tú (v. šī-š[i] . . . , Pl. 42, K. 274, 31)

precedes

¹⁵al-lu-zi | ina šī-ma-ḥu

¹⁵Šamu martu (rather than MAR-TU “Syria”, as in ¹⁵LUḤ MAR-TU, rue, p. 75) suggests more probably “a drug for bile, gall” than “bitter

¹ Or perhaps *šam-me t[e-lil-tu kul-li] (?) . . .* with l. 20 below.

² See p. 24, l. 15.

³ Cf. Pl. 4, K. 4325, i-iii, 39: Pl. 7, K. 4206, i-iii, 13: šēššī-eš.ḥu | mar-ra-tú | iṣ-ṣur tu-ba-qi.

⁴ Doubtful if there is a character here at all.

drug" (cf. the distinction shown by *marra-tum* (or *marru-tum*) in the phrase "time of bitterness" of the Opium, p. 227).¹

^{šam}UR(ÚR)-PI-PI occurs thus in *MT.* :

(1) *Simply: Ext.* : ^{šam}UR-PI-PI for *benni*, tied on neck in wool alone, *Pl.* 23, K. 9283, 18.

Int. : After binding poultice on *eyes*, [drink] ^{šam}UR-PI-PI with nitre (^{šam}PAR) and *Salicornia*-alkali without a meal, *AM.* 8; 7, 2. Perhaps (^{šam}Ú[R]- . . .) with soapwort (^{šam}*mastakal*) and thyme, drink without a meal, *AM.* 75, 1, iv, 13.

(2) *Seed: Feet*, bind on (^{šam}ÚR-PI-PI) with seed of *Hyoscyamus* and seed of ^{šam}*lišān kalbi* in rose-water, and (then) rub with oil, *AM.* 74, iii, 9.

(3) *PA (tops): Temples* (^{šam}ÚR-PI-PI), †, bray, anoint in oil, *CT.* xxiii, 4, 41, 11. *Swelling* (^{šam}ÚR-PI-PI), alone, split (*tašallag*), apply, *AM.* 74, ii, 19.

(4) *Root: Feet* (^{šam}UR-PI-PI) with seed of tamarisk, bray, apply, *AM.* 74, iii, 4.

Now the natural identification of the former, ^{šam}*lišān kalbi* "hound's tongue" would be with the *Cynoglossum* (see *Kü.* 76), while that for ^{šam}UR-PI-PI, which has the value (p. 24) *uzun lalê* "kid's ears", exactly parallel to the Arabic *ādān al-jady* "kid's ears",² as plantain (*IB.* 39), would be with some species of *Plantago*. But between these two, the *Cynoglossum* and *Plantago*, there has always been a confusion, which we first find in Assyrian times: *Pl.* 18, xvi-xv, 22 gives [^{šam}UR]-PI-PI *uliš šamlišān kalbi* (presuming the correctness of the restoration, as I am now inclined, from a re-examination of the tablet in 1922, when I thought it might be [^{šam}AŠ]-PI-PI), i.e. "[^{šam}UR]-PI-PI in common speech = ^{šam}*lišān kalbi*". In Arabic the plant *lišān al-kalb* represents both *Cynoglossum* and *Plantago major* L. *FP.*², ii, 250 and 417 (*Diosc.* ii, 152, and Sprengel's *Comment.* ii, 465, shows a similar confusion). *IB.* 2027 makes *lišān al-kalb* = *Plantago major* or *Lapathum* (sorrel): Ascherson (quoted *FJ.* iii, 64) heard it used for *P. major* in the Smaller Oasis. We shall, therefore, not be wrong in accepting a confusion in Assyria between *Cynoglossum* and *Plantago*. It should, however, be possible so far to unravel the different strands in the evidence provided by cuneiform, and to trace the original contrast between the two.

^{šam}*Lišan kalbi* is used about six times as often in *MT.* as ^{šam}UR-PI-PI: the difference between the two is thus:

(a) ^{šam}*Lišan kalbi*, simply, seed, root, shoots, water, "green," and in fumigation: *int.* for stomachic, and urinary troubles, jaundice, childbirth, menstruation, cough, and *ext.* for swellings and as poultice and eyes. As an amulet it is used for snake or dog bites.

¹ *Mar-tu* is restored from *Pl.* 37, 81-2-4, 264, 4-6:

.....	^{šam} <i>saḥ-li-e</i> . . .
.....	^{šam} <i>me-me-[tu]</i>
.....	^{šam} <i>mar-tu</i> ^{šam} „
.....	^{šam} <i>ši-ma-ḫu</i>
.....	^{šam} „
.....	^{šam} „

² Cf. also the Arabic *widnah* for *Plantago Lagopus* L., and *uḏainah* for *P. Coronopus* L. (*FP.*² ii, 420, 421).

(b) ^{ṣam}UR-PI-PI, rarely *int.*, and usually *ext.* as poultice. There would appear to be some "bitterness" about this plant.

P. major L. is used in India for dysentery and as stimulant (seeds), and as febrifuge (root and leaves) (*IMP.* ii, 1049 ff.), and in China the seeds are used as diuretic. Hill (*Useful Family-Herbal* 304) says that the whole plant is used, a decoction in water being excellent against menorrhagia, purgings, etc., and the seeds beaten to a powder are used against the whites. Pliny, *NH.* xxv, 77, says that the *Plantago* is useful for the bites of all animals, either *ext.* or *int.* In Tuscany the leaves are used as an eye-wash (*IMP.* ii, 1050). *IB.* 2022 gives *P. major* also the name of *lisān al-ḥamal*, prescribing it for ulcers, and internally.

It will thus be seen that *P. major* coincides well with ^{ṣam}liṣān kalbi. On the other hand there are facts about *Cynoglossum* which suggest that it may well represent the Assyrian plant. According to *LPG.* (178) the *Cynoglossum* is really deleterious, but the harmful qualities disappear in desiccation. Its mucilaginous property is useful for coughs; it is regarded as anodyne and sedative, and useful for diarrhoea, dysentery, and fluxes. Its leaves provide poultices and the fresh roots are applied to burns and goitres. It is also used against lice. Moreover, its very name is strong evidence (*cf.* *NH.* xxv, 41, which says that *Cynoglossum*, *C. officinale* L., has a leaf which resembles a dog's tongue, the root being used for fevers). Actually in modern medicine the *Cynoglossum* is accepted in certain Pharmacopœias as official (*P.* 472), but *Plantago* is not in *P.* at all, although the species *P. decumbens* Forsk. is found in Indian bazaars (*FHP.*² 490), the seeds being prescribed in decoction as a cooling, demulcent drink, or powdered and mixed with sugar for chronic diarrhoea.

The modern Arabic *lisān al-kharūf* "sheep's tongue" is given by Dozy for *Plantago*. There are numerous kinds of *Plantago* in Syria, and two forms of *Cynoglossum*, *FP.*² ii, 416 and 250. Any mucilage is doubtless represented by GISAL-EN-NA-ŠAR, since GISAL = *nāṭāku* "trickle".

^{ṣam}Aštabela[nu] = ^{ṣam}liṣān kalbi (*Pl.* 46, *Rm.* ii, 203, r. 6), and is thus a form of this plant, its kinship to ^{ṣam}aštabelu (= ^{ṣam}AŠ-PI-PI) indicating its association with ^{ṣam}AŠ-PI-PI, which is actually a few lines lower down from ^{ṣam}UR-PI-PI on p. 25 (see p. 255).

Of other species, the seeds of *P. ovata* Forsk. are used for renal affections and in poultices for rheumatic swellings (*IMP.* ii, 1051 ff.): a mucilage and paste of *P. psyllium* L. is used with other drugs in urinary disorders and dysentery (*BMM.* 458), and its other properties resemble those of *P. ispaghula* (the seeds of which are applied to rheumatism), the seeds being used as an astringent in dysentery. It is used also for coughs (*ib.* 459). In *AH.* I had taken ^{ṣam}liṣān kalbi to be more probably *Arnoglossum* than *Cynoglossum*; the confusion between these two and *Plantago* will be obvious.

II

A—C. ALKALIS AND SOAPWORKS

A. ALKALIS AND SOAPWORTS

1. $\text{\textit{sam}}^{\text{TÊ}}$, *uḥulu*, alkali.
2. $\text{\textit{sam}}^{\text{TÊ-SI}}$, *uḥulu qarnānu*, *Salicornia fruticosa* L. (or sim.) "horned alkali".

1. (A) *Pl.* 34, K. 4365 + *Pl.* 27, K. 4621 :

16. [$\text{\textit{sam}}^{\text{TÊ}}$]	<i>ú-ḥu-[lu]</i>
.....	<i>ú-ḥu-[lu]</i>
.....	<i>ú-ḥu-l[u]</i>
[$\text{\textit{sam}}^{\text{TÊ}}$]	$\text{\textit{sam}}^{\text{qi-il-tu[m]}}$
20. [$\text{\textit{sam}}^{\text{TÊ-SI}}$]	$\text{\textit{sam}}$ „ <i>qar-ni</i>
.....	$\text{\textit{sam}}$ „ <i>qar-ni</i>
[$\text{\textit{sam}}^{\text{TÊ-SI-MEŠ}}$]	$\text{\textit{sam}}^{\text{uḥulu qarnê}}$ ¹
[$\text{\textit{sam}}^{\text{TÊ-SI}}$]	$\text{\textit{sam}}^{\text{uḥulu qarnānu}}$
[$\text{\textit{sam}}^{\text{ZID-NIM}}$]	$\text{\textit{sam}}^{\text{sa-gi-la-t[u]}}$
25. [$\text{\textit{sam}}^{\text{uḥulu qar-ni (?)}}$]	$\text{\textit{sam}}^{\text{pi-ir kalbi}}$
<hr/>	
[$\text{\textit{sam}}^{\text{TÊ}}$] 1	$\text{\textit{sam}}^{\text{man-gu}}$
[$\text{\textit{sam}}^{\text{TÊ}}$] 1	$\text{\textit{sam}}^{\text{sa-me-tu}}$
[$\text{\textit{sam}}^{\text{TÊ}}$] 1	$\text{\textit{sam}}^{\text{ga-qu-lu}}$
.....	$\text{\textit{sam}}^{\text{ga-qu-lu}}$
30.	[<i>m</i>] <i>an-gu</i>
.....	[<i>s</i>] <i>a-me-tu</i>
.....	[<i>q</i>] <i>a-qu-lu</i>
.....	... - ² <i>tu</i>
.....	... - <i>šu-tu</i>

(B) *VAT.* 9000 : *CT.* xxxvii, 30, ii, 33, 108860 : *Pl.* 24, K. 4412, r. 23 :

$\text{\textit{sam}}^{\text{ZID-1NIM}}$	$\text{\textit{sam}}^{\text{sag}^2\text{-gi-la-[tú]}}$
$\text{\textit{sam}}^{\text{sag-gi-la-tú}}$ 3	$\text{\textit{sam}}^{\text{uḥulu}}$
$\text{\textit{sam}}^{\text{TÊ}}$	$\text{\textit{sam}}^{\text{ú-ḥu-lu}}$
$\text{\textit{sam}}^{\text{TÊ}}$	$\text{\textit{sam}}^{\text{qí}^4\text{-il-(tú)}}$
$\text{\textit{sam}}^{\text{TÊ-SI}}$	$\text{\textit{sam}}^{\text{qí-il-tú [qarni]}}$
$\text{\textit{sam}}^{\text{SA-AD(?) -GAL}}$	$\text{\textit{sam}}$ [„ (?)]
$\text{\textit{sam}}^{\text{uḥulu qar-ni}}$	[$\text{\textit{sam}}^{\text{pi-ir kalbi (?)}}$] 5

The sign TÊ is explained in *CT.* xi, 45, i, 6 :

<i>te-e</i> | TÊ | <i>ú-na-ga-te-nu-u</i> |	<i>man-gu</i>
	<i>qa-qu-lum</i>
	<i>ša-me-tu</i>

¹ From *CT.* xi, 45, i-iii, 6-8 (see bottom of this p.).

² *VAT.* 9000 has a gloss which Pick read *li-im*. I am not quite sure of it from the photograph, but it may be so.

³ *Pl.* 24, [*sa*]-*ag*.

⁴ 108860 for this line has $\text{\textit{sam}}^{\text{IŠ-KAD}}$. . . ditto = $\text{\textit{sam}}$. . . ditto. (*Pl.* 24 has . . . | [$\text{\textit{sam}}^{\text{sa-a}}$]-*gi-la-[lu]*.)

⁵ 108860 *qu*.

⁶ Line not on *VAT.* 9000.

Both *uhulu* and *uhulu qarnanu* occur in *MT.* :

1. *Uhulu* (no determinative) :

Simply : cleanse mouth (along with alum and ^{šam}FAR (nitre)), *AM.* 54, 1, r. 9. 1 shekel as part of an elaborate enema, †, *AM.* 41, 1, 18. Cf. $\frac{1}{3}$ ma (na) *uhu* [lu] . . . , †, enema, *AM.* 56, 5, r. 2.

2. (a) *Uhulu qarnanu* šAR :

Fumigate with black sulphur, hart's horn, etc., *AM.* 98, 1, 2, *dup.* 99, 3, r. 20.

(b) *Uhulu qarnanu* :

Simply : *Ext.* : 3 gr. with 3 gr. of gum of scammony and 3 gr. of lizard's dung, steeped in goats' milk, bind on, *AM.* 9, 1, 30 : †, uncertain use, *AM.* 16, 1, 8 : †, apply, *AM.* 17, 4, 9 : 19, 6, 12. Wash eyebrows (or eyelashes) alone, *CT.* xxiii, 26, 6. *Tooth* or *mouth* (KA-DIB-BI-DA), †, [apply], *AM.* 78, 1, 30. *Cough*, †, bind on, *AM.* 50, 3, 3. *Strangury*, (?), †, bind tip [of penis (?)], *AM.* 60, 1, 1, 5. *Blains* (šiggati), †, bind on, *AM.* 32, 5, 5, 8. *Swollen heel*, †, bind on, *AM.* 73, 1, 16.

Suppository : †, *AM.* 57, 5, r. 8, 12 (or enema).

Enema : †, *KAR.* 157, r. 15 : †, *AM.* 56, 1, 14 ($\frac{1}{3}$ mana) : †, *ib.* r. 7 : †, *AM.* 57, 5, r. 2 ($\frac{1}{3}$ qa) : †, *AM.* 94, 2, 4, 9 : †, *KAR.* 157, r. 26. *Put to anus*, †, *AM.* 53, 9, 11.

Bathe, †, *AM.* 94, 2, ii, 9 : †, 98, 3, 3. As soap (with *Ricinus*) in hot water, wash head, *AM.* 3, 5, 9.

Fumigate : *Hand of Ghost*, †, *AM.* 93, 1, 11 : for *Ghost* lying on patient, 10 shekels, with 10 shekels of *Nigella*, and IM- . . . (no amount), *AM.* 99, 3, 17 : for similar, †, *ib.* 19 : for similar (*temples*), †, *AM.* 103, 19. Adjective applied, [fumigate,] *qaliti*, †, *AM.* 7, 7, 4.

(3) *Water* : alone, bathe feet, *AM.* 74, ii, 36.

Int. : *Stomachic*, †, uncertain, probably drink, †, *AM.* 39, 1, 35 : 40, 1, 48. Prob. for *stone*, 1 shekel, †, apparently drink, *AM.* 89, 4, r. 1. *Urinary trouble*, with IM-SAĦAR-KUR-RA in oil, introduce into urinary passage by a bronze tube, Lutz, *AJSL.* 1919, 81, l. 104.

Quantity : besides those given above, 2 shekels, *AM.* 5, 7, 5.

Its chief use, either as simple *TE* or *TE-SI* ("horned") is *ext.*, for eyes, eyebrows (or lashes), mouth, head, swollen heels, blains, and bathing generally, but it can be used *int.* for stomach, and perhaps stone, and it is fairly common in fumigations or enemata. It has long been identified with the Syr. 'ahlā "lye" (*HWB.* s.v.), which represents the Arabic *šunān*, well known in the Mesopotamian bazaars. *Šunān*, *ušnān*, is applied apparently to several soda-plants (e.g. *Arthrocnemum glaucum* (Dal.) Ung. Sternb. = *Anabasis articulata* Mq.T. : *Salsola Kali* L.), *FJ.* i, 647 (on the Arabic and other words for soap-plants see *ib.* 637 ff. and p. 33). It is described by Chesney (*Exp.* i, 574, cf. 593), in his speaking of "sheinan and el kali", the soap-plants found in the deserts east of Palmyra, El-'Asha, and Nejd, the Arabs still obtaining lye from their ashes (cf. *Von Opp.* ii, 386, between Damascus and Palmyra). Rauwolff (i, 33) says that at Tripoli there are ashes made chiefly of a herb called schiran,¹ whereof there are two sorts, one not unlike kali, the other has many stalks which are full of knots like our equisetum (cf. his description of the well-known soap-products of Tripoli, *ib.* 34). The *šunān* which I

¹ Evidently a mistake for *šunān*.

have seen in Mesopotamian bazaars is rather like small, dry pieces of vermicelli, about $\frac{1}{2}$ in. long. I was told that it dried on the bush, and came from Suq esh-Sheyukh (on the south side of the Khor el-Hamar). Major W. C. F. Wilson was so good as to send me some specimens of it from Mosul, as well as specimens of the *jilu* or *julu*¹ which is the result of burning this *šunān*. The *jilu* is in irregular lumps, light in weight, and about the content of an ordinary small cubic lump of sugar (as we have it in England), and obviously has been calcined, being of a light grey colour, friable, and easily broken. In using it for washing purposes the Arabs, so Major Wilson tells me, take 2 parts of *šunān* to 1 part of *jilu*, the former being crushed to powder and then placed in a thin muslin cloth, and the whole then immersed in boiling water for a few minutes. To the foam thus produced cold water is added, and the clothes are then washed in it. Chesney (*Exp.* i, 593) says that Arab soap "is made from the ashes of plants called chuddraife, rugge, cutlaff, samah, and shiman" (*cf.* Burchardt's *Travels in Syria*, p. 354): and the last, which produces the best quality, abounds in the country eastward of Damascus. It has a soft, juicy stalk, of a yellowish brown colour, resembling in its form coral, or rather the samphire plant, but somewhat rounder. It grows to the height of 18 inches or 2 feet, and the Arabs perfectly understand how to burn and prepare it.²

With this description of the soda plants we can go on to the specialized *uḥulu qarnanu* "horned alkali", *qarnanu* being explained as "horned" by Küchler (*Kü.* 96, 106; *cf.* Jastrow, *TCCP*. 378). The word occurs as *qarnānā* in Syriac applied to the poppy, *i.e.* one of the "horned" kinds (*FJ.* ii, 366: *cf.* *FP.*² i, 37 ff.). Clearly it is descriptive of *Salicornia*, the name of two species of *Chenopodiaceæ* abounding in soda (the name is

¹ A cognate word is *jilah*, the name of a small village on the Khosr, about two miles north-east of Kouyunjik. It takes its name from the local grey clay which is used for washing garments; there is also a red clay which would appear to have been used for the royal tablets of Nineveh (*Arch.* 1929, 114, 148: *CEN.* 134).

² For convenience I append a list of the alkaline plants likely to be of use, with their Arabic equivalents from *FP.*² ii, 430 ff., and *FJ.* i, 648 ff.: *Chenopodium album* L. (*fiss al-kilāb*), *C. opulifolium* Schrad. (*mittain*), *C. murale* L. (*munṭinah*, *šimṭār*), *C. ambrosioides* L. (*natna*): *Atriplex dimorphostigia* Kar. et Kir. (*zurbāh*), *A. tatarica* L. (*gataj*), *A. Leucoclada* Boiss. (*šujarat ul-beyyadīn*, ru"l, bur"ul), *A. Halimus* L. (*gataj*, *rughat*, Heb. *mallāḥ*), *A. farinosa* Forsk. (*huwwaj*): *Chenolea arabica* Boiss. (*thalathai*); *Salicornia fruticosa* L. (*ḥatab ḥaddādeh*, *abū saq*, *barwāl*, *ghassūl*, *hāmd*): *Arthrocnemum glaucum* (Dal.) Ung. Sternb. (*khraisi*, *šimām*, *uṣnān*): *Suaeda fruticosa* (L.) Forsk., *Chenopodium frut.* L. (*ḥatab šāmi*, *ḥatab suwaydi*), *S. vera* Forsk. (*suwaydi*, *hammām*), *S. monoica* Forsk. (*asal*, *hriyah*, *hāmd*), *S. maris-mortui* Post (*mallūḥa*): *Salsola Soda* L., *S. Kali* (*galī*), *S. inermis* Forsk. (*gummayli*, *nadawah*), *S. tetrandra* Forsk. (*thulayyith*, *arād*, *jill*, *zamrān*, *damrān*), *S. longifolia* Forsk. (*haidaid*), *S. rigida* Pall. (*ḥurait*): *Noea mucronata* (Forsk.) Arch. et Schweinf. (*shauk al-hanaš*, *athirr*, *thirr*, *dirr*): *Anabasis articulata* (Forsk.) Moq.-Tand. (*uṣnān*, *ṭarṭir*, *ajram*, *balbal*): *Halopeplis amplexicaulis* (Vahl.) Ung. Sternb. (*adū*): *Halocnemum strobilaceum* (Pall.) M.B. (*sabtah*): *Halogeton alopecuroides* (Del.) Moq.-Tand. (*hamḍ*): *Schaginia baccata* (Forsk.) Moq.-Tand. (*mullaih*, *ṭarṭir*, *tahamah*): *Traganum nudatum* Del. (*hāmd*, *thirr*, *zamran*): *Haloxylon* (*balbal*), *H. Ammodendron* C.A.B.: *H. articulatum* (Cav.) Bge (*niqūn*, *ṭufwah*, *lūtūn*), *H. Schweinfurthii* Arch. (*rinth*).

"Seifenpflanzen in Palästina nach Hasade 10,366: *Anabasis articulata* (Forsk.) Moq.; *Arisarum vulgare* Targ., die Knolle; *Hedera helix* L., Blätter und Beeren; *Leontice leontopetalum* L.; *Mesembryanthemum crystallinum* L.; *M. nodiflorum* L.; *Salicornia herbacea* L.; *Salsola Kali* L.; *Suaeda fruticosa* L.; *Saponaria vaccaria* L." (*FJ.* iv, 117). (For some of the above, more fully dealt with because of their probable equivalence with *šammaslakal* and *šamtulal*, see p. 45 f.) Ainsworth (*Travels* ii, 301) mentions a species of *Salsola* at Urumiyah. *Salicornia fruticosa* L. occurs in Sinai, etc., and *S. herbacea* L. in various parts of Syria (*FP.*² ii, 440-1).

the Latin *sal*, salt, and *cornu*, a horn, from the alkaline salt in which it abounds, and the horn-shaped branches, C. A. Johns, *Flowers of the Field*, 530).

It would seem, therefore, that there is no doubt about the *uhulu* and the *uhulu qarnanu* as being species of the *Chenopodiaceae* alkalis.

Note the sulphur-soap in a ritual to cleanse a man from the anger of another as typified by the spittle spat by the enemy as he went by: "*riqli* (turpentine), KI-A-^a[*id*] (sulphur) *uhulu qarnanitu* (so in ll. 12, 21, 'horned alkali') thou shalt take, bray together, put in water and recite the incantation: 'O¹ my alkali, horned alkali' over (this); this water shalt thou pour on this spittle and oil in a *mizu*²-bowl of *išû*-wood (willow) thou shalt take; this 'ointment' therein thou shalt put, recite the incantation over (it), and with this oil anoint all thy body, and the man who is angry with thee shall be appeased, and the speech of thy mouth against him shall be kindly" (*KAR.* 43, 10, *dup.* 63, 10). My friend the Rev. A. S. Herbert kindly pointed out to me that *riqli* as a turpentine will not form a soap with alkali; the soap is completed with the oil mentioned subsequently. The effect of the turpentine must either be (a) to dissolve the sulphur, which would be insoluble in water: "sulphur is insoluble in alcohol, but soluble in oils, both fixed, such as linseed, and volatile, such as turpentine; with the former of which it forms *balsamum sulphuris turpentinum*, with the latter the *balsamum sulphuris terebinthatum*" (*PC.* xxiii, 259). "In workhouse practice, the preferable mode of employing sulphur is by uniting it with soft soap" (*ib.*); or (b) as resin, when it can play its part in the soap, as on p. 40.

Much earlier soaps are mentioned (a) by Gudea (see Thureau-Dangin, *ISA.* and *SAK.*, Cyl. B. ix, 6) A KÙ-GI-DA TÊ EL-E-DA (7) IÀ BUR-BÂR-BÂR-RA TÊ É-NUN-NA-DA, wherein, as can be seen, water, alkali, and oil are all mentioned: and (b) (see De Genouillac, *RA.* 1909, 113, 3rd Dyn. of Ur) the proportions of a soap, 1 *qa* of IÀ (oil) and 5½ *qa* of TÊ (alkali). Another for washing wool apparently was made with wood-ash: e.g. after several totals of wool, oil, IÀ-NUN (*himetu*-ghee), dates, and copper, we find "total 4 talents 2 mana of goats' hair, total ½ *qa* good *himetu*-ghee, NE-KÚ-BI (its charcoal) 1½ shekels" (*AT.* No. 50, i, 7 ff., iv, 7 ff., *DACG.* 78). It corresponds to the beech-ash used in certain early soaps (*EB.*, xith ed., s.v. "Soap") and is here probably the tamarisk (see p. 40).

Medicinally we find a form of alkali used in India (*Salicornia brachiata* Roxb.); the leaves of *Suaeda fruticosa* Forsk. are applied as a poultice in ophthalmia, and are infused in water as an emetic (*IMP.* 1068-9). Gerarde (429) recommends *Salicornia* for provoking urine, and for bringing forth a dead child from the womb, and the ashes for removing scabs.

In the cuneiform glass-texts of the seventh century *digmen* ³*amuhuli* "ash of alkali", *digminu ša* ³*amuhuli qarnani*, ³*amuhulu*, and ³*amuhulu haršu* *la taiaru* (sharp pieces, not round lumps) are the kinds used. The proportions prescribed appear to represent the amount of alkali calculated before

¹ Postpositive *-ia* appears almost to have the value of a vocative, curiously like the prepositive Arab. *iā*; cf. *GE.* vi, 68, "Išullani-ia kiššuta-ki i nikul," "O Išullanu, etc.," *KAR.* 122, 14, "Taš-me-tum-ia."

² Examination of a parallel phrase in King, *Magic*, No. 12, 8, suggests *napšaštu* "anointing bowl".

calcining takes place (*DACG.* 15 ff.). On the other hand, in the glass-text of the seventeenth century B.C., alkali is not mentioned, but *zukkā*, an alkaline glaze, is one of the components (*DACG.* 197).

The method of obtaining alkali from *Salicornia brachiata* Roxb., *Suaeda fruticosa* Forsk., and *S. monoica* Forsk. in India is to burn the sundried plants in pits, the alkali thus fused collecting at the bottom, becoming "barilla" ready for export (*IMP.* 1069). Bacon (quoted by Fowler, *Arch.* 1881, xlv, 95, note) says that the ashes of kali growing in the desert between Alexandria and Rosetta were compressed into masses like stones and sold to the Venetians for making glass.

The other Assyrian words for alkali (*p.* 31 ff.) are :

(1) ^{šam}*Qiltu*, obviously the Arab. *qily*, alkali, the calcined *šunān* (*jilu*, *julu*, *qilu* of mod. Mesopotamia), from *qalā* "to calcine". (^{šam}*qiltu*, like *uhulu*, can have the attribute *qarni*.)

(2) ^{šam}*Sagilatu*, distinct from ^{šam}*saggilatu* (*p.* 31). It must, of course, from its association here, be an alkali, and therefore cannot be the Syr. *segethā*, Cyperus (Zimmern, *AF.* 58), and may well be the Aram. *šalgā*, an alkaline plant (*AH.* 116), or even more probably Arab. '*aslaḡ*', a soap, *FJ.* i, 649. ^{šam}KU-NIM, built up of KU (= ZID) "powder", and NIM "buzzing fly" (paralleled by NIM in ^{aban}ZA-NIM, for which I suggested in *DACG.* 140 "stone effervescing under acid"), probably "effervescing powder", i.e. the bubbling lather of soap.

(3) ^{šam}*Pir kalbi*. I doubt if *pir* can be referred to *pir'u* "offspring", as *BAG.* 226 suggests. Cf. *fiss al-kilāb*, *Chenopodium album* L., *FP.*² ii, 430; if, however, it be one of the *Chenopodiaceæ* other than the soda-productive plants, it may be the link between this register and the next which contains a fresh group of this genus. If ^{šam}*pir kalbi* should mean "dog's eructation" (from *parāru* "break", i.e. wind) it would suggest the *Chenopodium vulvaria* "Stinking Goosefoot". ^{šam}*Pi-ir kalbi* occurs in Scheil, *RA.* 1921, 4, No. 7, Col. ii. (See, however, ^{šam}PI-PI-nu-nu, *p.* 38).

(4) ^{šam}*Mangu*, (5) ^{šam}*samelu*, (6) ^{šam}*qaqulu*.

With ^{šam}*pir kalbi* the register of *Salicornia* and *Salsola* comes to an end, but from the Sumerian column of our texts the sign *rē* still indicates the plants in the following register. Here, again, we must see plants allied to the soda-plants, the Assyrian botanist being alert to the similarities of all the species of *Chenopodiaceæ*.

^{šam}*Mangu* was identified with the Syr. *maggā*, *Phaseolus Mungo* L., by Meissner (*ZA.* vi, 293; cf. *FJ.*² ii, 468). Similarly he identified ^{šam}*qaqulu* with the Aram. *qāqūlā*, *Cardamum* or *Nasturtium*, a kind of cress eaten by the poor (Jastrow, *DT.* 1409) (= *qāqūlag*, Brock., 335). These two, with others, may be represented in *MB.* ii, 1-5, *ši-tu-ū šAR*, *lah-lah-ḫi šAR*, *man-ga šAR*, *šu-qur* (or *mit*)-*tu šAR*,¹ *qa-qu-ul-lu šAR* in one register.

I am inclined to think, however, that the presence on the lists on *p.* 31 of the sign *TÊ* compels us to refer these plants to some sort of alkalis, and therefore that we should see in ^{šam}*mangu* the Arab. *mārjo* "soda", *qali*-plant, *Suaeda fruticosa* Forsk. (Dozy, *Suppl.* ii, 578), in spite of the Syr. *maggā*, *Phaseolus Mungo* L., Arab. *manāj* "a sort of

¹ The difficulty is in the reading, whether we are to see *šukurtum* or *šumiltum* (= *šumultu*, *šimiltu*?).

green peas", the Mungo of Clusius (Dozy, *ib.* 617). ^{Sam}Qaqulu may equally well be the Arab. qāqulla, *Salsola fruticosa* L. (*Suaeda fruticosa* Forsk.) of Iraq (Dozy, *ib.* 296: PS. 3710), which in SM. ii, 721 finds the explanation in (Syr.) mallūhā = ušnān al-qāqilī (Vol. i, 606 'āthāndā wēqāqlī). IB. 1725 says that qāqulla is eaten with milk, resembles soda, and its leaves are like cultivated cress (has he here a reminiscence of qāqūlā = *Cardamum*?). Raši (Job. 30, 4) gives the Heb. mallūah = Aram. qāqūlīn (FJ. i, 649, 650, q.v., for qāqlī = ušnān).

On the other hand it is possible that in the MB. group Meissner was right, and that we have doublets of both *mangu* and *qaqulu*, the former as "bean" and the latter as "cress", their counterparts being, as I have suggested, words for alkaline plants. Šitū šar I cannot identify; lahlahhi šar is perhaps the Arab. lahlāh, *Silybum Marianum* Gärtner. (Dozy, *ib.* 521), *Carduus syriacus* (see Forskāl, *Flora Aeg.*, lxxiii = *Notobasis syriaca* L., FP.² ii, 92).

Our last alkali-word ^{Sam}s(š)ameṭu may be compared to the Arab. suwaidī (*Suaeda vera* Forsk.). ^{Sam}Sa-miṭ occurs in a marḥaṣ (lotion), †, in beer, KAR. 202, iv, 43.

B. ALKALIS AND SOAPWORTS

^{Sam}ZID MĀ-LAH, ^{Sam}kakkab tamtim, *Atriplex halimus* L.

(A) Pl. 18, K. 4354, r. xvi-xv:

^{Sam} PI-PI-NU-NU ¹	.....
^{Sam} [LÚ(?)]-a-nu	^{Sam}
^{Sam} ZID-LUL-A	^{Sam} ZID MĀ-LAH(ḌU-ḌU)
^{Sam} GAB-BUR ²	^{Sam} ZID MĀ-LAH(ḌU-ḌU)
^{Sam} KA ³ -ZAL	^{Sam} ZID MĀ-LAH(ḌU-ḌU)
^{Sam} GÚ-ÍD	^{Sam} ZID MĀ-LAH(ḌU-ḌU)
^{Sam} ZID MĀ-LAH(ḌU-ḌU)	^{Sam} bi-nu-ut a-gi-e
^{Sam} KU-SA A-AB-BA	^{Sam} kakkab tam-tim
^{Sam} KU-SA ia-a-me ⁴	^{Sam} kakkab tam-tim
^{Sam} a-lu-lap ut-liš	^{Sam} pir-lī šar PA ^{VI} -šú
	šihru ^{VI} šal ^{VI}
^{Sam} ka-ni-pa-nu ut-liš	^{Sam} hu-lu-ub(?).....

(For the continuation see p. 175.)

I had, I confess, been led to consider the possibility of much of this group being the Caper, *Capparis spinosa* L., parallel to the ^{Sam}baltu-group (p. 175). There were certainly some reasons for considering this as a possibility; the name ^{Sam}GAB-BUR in comparison with the Syr. qappar, the word ^{Sam}pirhi šar in comparison with the Syr. parḥā "caper", and ^{Sam}aḥulap in comparison with the word ^{Sam}A-ŠI-A-ŠI, aḥulabaku equivalent to ^{Sam}baltu "caper" (Thureau-Dangin, RA. 1919, 169).

¹ Re-examined; fairly certain.

² ^{Sam}GAB-BUR beginning a section of three plants only, Mat. 88, 5, 49.

³ Probably in Mat. 88, 5, 50.

⁴ Scheil, RA. 1921, 5, No. 9, i, 3, ^{Sam}KU-SA ia-a-me.

But actually this, however attractive, cannot be maintained. For one thing, it is unlikely that there would be two different groups meaning "caper" without any connecting link. For another, ^{Sam}GAB-BUR would be a slender piece of evidence as a philological comparison; and finally the Syr. *parhá* has also the value "flower". The most serious evidence is that of ^{Sam}A-ŠI-A-ŠI which is definitely ^{Sam}baltu, and its equivalent *ahulabaku* is practically the same as ^{Sam}ahulap, which is given in our text above as "in common speech ^{Sam}pirhi ŠAR, whereof the shoots are young and tender". Even here, however, we have to consider that ^{Sam}ahulap is quoted "in common speech", and it is not exactly *ahulabaku*.

The clue lies in the probable connection of ^{Sam}ZID MÁ-LAH with the Heb. *mallúah*, generally taken to be *Atriplex halimus* L. Indeed, from p. 15, 38 it is not improbable that we have also to consider ^{Sam}mallahtu, a spinach, as closely allied, even if not exactly equal to ^{Sam}ZID MÁ-LAH. That this in some measure fits the Heb. *mallúah* will be obvious; "The *Atriplex halimus* has undoubtedly the best claim to represent the *Malhuach*, as Bochart (*Hieroz.* ii, 223) and before him Drusius (*Quæst. Hebr.* i. qu. 17) have proved . . . The Greek word used by the LXX is applied by Dioscorides (i.c. 120) to the *Atriplex halimus*, as Sprengel (*Comment. in l.c.*) has shown. Dioscorides says of the plant that "it is a shrub which is used for hedges, and resembles the Rhamnus, being white and without thorns; its leaves are like those of the olive, but broader and smoother, they are cooked as vegetables, the plant grows near the sea and in hedges." . . . The Hebrew name, like the Greek, has reference either to the locality where the plant grows—"nomen graecum a loco natali ἀλίμω, παραθαλασσίω," says Sprengel—or to its saline taste. . . . it grows on the sea-coast in Greece, Arabia, Syria, etc." (Smith, *DB.* ii, 215). *FCH.* 38 says: "The Qataf of the desert is *Atriplex halimus*, which grows down by the Dead Sea in silvery scurfy bushes and the leaves of which we suppose, as those of other wild Oraches, are edible when young."

Most interesting are the two names "Fox-Flour" and "Sailor's-Flour" which have evidently arisen from the scurfy or powdery deposit on the plant. For instance, Bentham (*Hdbk. to the British Flora*, 1858, 441) describes the *Atriplex* (Orache) as "herbs or undershrubs, often covered with a grey or white scaly meal"; especially note the Wild Spinach ("Good King Henry", *Chenopodium bonus Henricus* L.).¹ "The stalks . . . are . . . covered with a whitish powder, which is likewise found on the underside of the leaves" (*VK.* 304). (In Lincolnshire this is cultivated and preferred to the common spinach, *ib.*)

Its other Assyrian names correspond: "Bank of the River," "Offspring of the Flood," "KU-SA of the Sea," all show its maritime connection, and its descriptive epithet "Star of the Sea" doubtless represents the five-petalled flower of the *Atriplex halimus* as given in Smith's *DB.*, *l.c.* (similar to the ^{Sam}DIL-BAT "Venus-flower", p. 43). ^{Sam}Ahulap, as a name in the mouth of the common people, must be a punning derivative of *uhulu*, the general name for the alkaline plants (to

¹ Cf. also *Atriplex rosea* L., "on the sea-coasts, and in the saline districts, of Europe, Asia, and Africa" (Bentham, *Hdbk.* 443) "much more covered with a white scaly meal." For ^{Sam}KA-ZAL see p. 15.

which the *Chenopodiaceae* belong): cf. Löw, *Ar. Pfl.*, 42, which discusses the Syr. *mallûhâ* along with the *ahlâ*, *uhlâ*. The sense "How-long-plant" doubtless had some popular explanation; here, too, the description "^{šam}*pirhi* šar, its shoots young and tender" (similar to the description of opium, p. 229) certainly fits in with the young shoots of the spinach. ^{šam}GAB-BUR, resolved into its Sumerian values, might mean *epû* + *naplân* "cook + a meal", which is borne out by the song of the fellahin of Palästine, "Without the Hedge Mustard and Spinach the Bedu would be plucked bare," i.e. the Bedu without such wild food would be shrunk away to nothing, so valuable to them are the two plants (*FCH. ib.*).

If ^{šam}PI-PI-nu-nu ("Fish-PI-PI-plant") belongs to this group, as presumably it does, and if we are to see in this word a reference to the smell (see p. 35) this may be the Stinking Goosefoot, *Chenopodium Vulvaria* L. (Europe and Western Asia, "remarkable for a strong, stale-fish smell when rubbed" (Bentham, *Hdbk.* 348).

We may, therefore, accept ^{šam}ZID MÁ-LAH, with its synonyms as *Atriplex halimus*, although the other spinach, *C. bonus Henricus*, has a claim. The fact that the Assyrian word for "saltpetre" is *mel'u* disproves any connection of the Heb. *mallûah* with "salt", if this Assyrian word ^{šam}ZID MÁ-LAH really represents the *Atriplex*.

We have also here to consider the Assyrian ^{šam}*mallahtu* given on p. 4 as equivalent to ^{šam}*išbattu*. This latter, although not given as an equivalent to ^{šam}ZID MÁ-LAH must surely be connected, since ^{šam}*išbattu* is closely connected with the spinaches. The connection ^{šam}KU-SA *iâme* with the difficult ^{šam}KA-A-AB-BA, p. 36, will give us a clue to its meaning (see p. 37).

^{šam}*Pir(pir)-hi* šar is prescribed thus in *MT.*:

Seed only, *Ext.*: *KAR.* 189, 11: *AM.* 6, 3, 8 (†, $\frac{1}{3}$ qa, for head or temples, joining K. 2354, Col. i, *CT.* xxiii, 24, after l. 15): *AM.* 45, 5, r. 4 (†, in a bandage for the stomach): *KAR.* 205, 7 (†, in oil, doubtless reading *zir* for *nu*): *AM.* 74, 1, iii, 10 (bind on feet with sumach-seed in rose-water): *AM.* 69, 2, 8 (†, bathe, feet). Pliny (*NH.* xx, 83) says of the Orage (*Atriplex halimus*) that it has been recommended as a liniment for inflammatory swellings, incipient boils, and all kinds of indurations.

^{šam}ZID MÁ-LAH(DU-DU) occurs thus in *MT.*:

... MÁ-LAH(DU-DU), †, probably for poulticing, breast and loins, *AM.* 49, 4, 8: and ... MÁ-LAH(DU-DU), †, including cantharides and rosemary mixed in oil for weak hair, *CT.* xxiii, 36, 51. For TAB-UD DA ("heat of the day") ^{šam}ZID MÁ-LAH(DU-DU) brayed and anointed alone in oil, *KAR.* 203, i-iii, 50. Pliny (*NH.* xx, 83) says that wild Orage is used for dyeing the hair. (For the ext. use of *Atriplex* see above.)

C. ALKALIS AND SOAPWORTS

1. ^{am}IN-NU-UŠ, *mastakal*, "Wash-All," a soapwort, probably *Struthium*, *Saponaria*.
2. ^{am}Tu(l)al, "Thou-shalt-wash," a soapwort, perhaps *Leontice leontopetalum* L.
3. ^{am}DIL-BAT, "Venus-flower," a soapwort, perhaps *Cyclamen*.

First, before giving the medical uses of these plants, I propose to show that they are especially "washing plants" such as the Arabs use. This is particularly obvious in the case of ^{am}IN-NU-UŠ, *mastakal*.

1. Beginning with this plant, the most important instance is to be found in *Maqlû* i, 46, where after the performance of the ritual with the "Town of Zābban, with its two gates, East and West", the bewitched man holds (up) *era hašbu*¹ ^{am}*mastakal*, and brings water to the gods: "as I (cleanse) you, so do you cleanse me." Here the plant plays a solitary part in a cleansing ritual with water, which suggests at once that it is some kind of soapwort.

Continuing on these lines we find this plant with others in the Incantation-texts proper:

CT. xvi, 24, 18, water is to be poured into an *asammû*-vessel (basin), tamarisk and ^{am}*mastakal* placed therein, the "Incantation of Eridu" performed with the water, and then the patient is to be sprinkled with it ("that the *namtaru* (plague) which is in the man's body may trickle away² like the water"). CT. xvii, 31, 30: a *šaharratu*-vessel is to be filled with water, tamarisk, ^{am}*mastakal*, "small palm." GI-ŠUL-ŠĀR, pine-resin (turpentine, ^{iq}LI) *Juniperus oxycedrus* (^{is}ERIN-PAR-RA) placed therein, the "Incantation of Eridu" performed, and the patient sprinkled with the water; ultimately, as the water trickles away (ŠUR-RA, or ŠUR-ŠUR) from his body, so may the *namtaru* (plague) in his body be washed away. Then the water is to be returned to a cup and poured away in the street.

CT. xvii, 38, 35 is still fuller, and more magical, to cleanse a tabu caused by one who has come into contact with unclean water or with some person unwashed (obviously a very intricate ritual, perhaps for a priest rather than an ordinary layman). Water taken from a river-mouth on both banks is to be placed in a *šaharratu*-vessel "which has come from a large kiln", and therein are to be placed tamarisk, ^{am}*mastakal*, "small palm", GI-ŠUL-ŠĀR, *Salicornia*-alkali, [sa]lt, . . . *supalu* (manna), ^{ku} (urkarinnu), *riqqê* (gums), pine, fir, *liāru* (*Juniperus oxycedrus*), various oils (including that of *niqibtu*), fat of a cow born (or made) in a pure fold, . . . , *šarirû* ("red gold"), crystal, white lead for eyes, serpentine, white lead, carnelian, and lapis.

Other texts in *Maqlû* are easier, e.g., i, 21 ff.: ^{is}bīnu lillilanni ša kimmātu šarû, ^{is}gišimmaru lipšuranni, mahīrat kalû šāru, ^{am}IN-NU-UŠ libibanni ša iršitīm malāta, terīnatu lipšuranni ša šeam malāta: "May the tamarisk cleanse me, whereof the fronds (hair, top) grow high, may

¹ BAG. 63: Meier, *Maqlû* 8, "eine Blütenrispe": Tallqvist, *Maqlû* 35, "einen kasten, einen topf."

² *Lišrur*, here equivalent to ŠUR-ŠUR, which also has the value of *muššuru*, while ŠUR = *tabdû*.

the date-palm free me, which-faces every-wind, may the *mastakal*-plant clean me, which fills the earth, may the pine-cone free me, which is full of seed-corns." ¹

Again, in ix (Meier, *Maqlû*, 63, 170 ff.: Tallqvist, *Maqlû*, ii, 50, 73 ff.) we find a similar group for washing hands, tamarisk ^{šam}DIL-BAT (p. 43), date-stone, *pû* (chaff), gypsum, *šU-GUR* ² *aban*ZA-SUH, fir-turpentine, pine-turpentine.

Similarly *Šurpu* ix, 1 (Zimmern *Šurpu*, 45: Dhorme, *RT.* 1907, 125: *BRP.* iv, No. 17, 1 ff.) gives a series of invocations to the tamarisk, ^{šam}*mastakal*, *Acorus calamus*, *Salicornia*-alkali, salt, cedar, pine(-resin or turpentine), in which the burden at the end of each section is practically the same, i.e. that the patient's mouth shall be clean, and the evil tongue shall stand aside.

We have, therefore, to explain not only ^{šam}*mastakal*, the unknown plant in these cleansing texts, but also among other substances the "small palm", the palm, *Acorus calamus*, GI-SUL-ŠAR ("reed for plaiting"), pine-resin, juniper, manna, tamarisk, alkali, ^{šam}DIL-BAT, and ^{šam}*tullal*. On the assumption that these are texts which include substances to cleanse the sick man, we can discuss them in this light.

To begin, it may be stated that, apart from plants used as soapworts, the various components of soap are fats (palm-oil), alkali (potash, soda), resin, and salt. In our last invocation we have the alkali, salt, and resin clearly; hence we have to explain, on these lines, the others as used for washing. I suggest the following:—

The tamarisk obviously plays the most important part in some of these washing-rituals; most simply we find it with ^{šam}DIL-BAT and ^š*uquru* (King, *Magic*, No. 12, 84): "May the tamarisk cleanse me, may the DIL-BAT-plant free me, may the 'heart of the palm' release my sin." In *BBR.*, No. 11, 1 ff. (cf. No. 75, 14), the seer is directed to wash, anoint himself with unguent (scented) with ^{šam}*imhur pāni* (heliotrope), put on clean clothes, and then ^{šam}*bīni šam*tul-lal *uallal* (i.e. cleanse himself with these two plants), and cedar . . . *ina*'i^š without a meal, and then chew corn. Again, in a ritual, *rikibtī* of IB-HU (Cantharides), ^{šam}*eli*-[*kulla*], *tertenna* of tamarisk, . . . , ^{šam}*mastakal*, palm, ^š*kan*[*šam*], and *mim-ma zerē*³ are to be put into water to wash the man (*KUB.* iv, 48, and *VAT.* 10830, *Liebesz.* 52).

In these texts the part of the tamarisk used can hardly be the galls or the manna, and we must seek another substance obtained therefrom.³

¹ A pun in *Maqlû* vii, 11 (Scheil, *RA.* 1925, 155) gives [^{šam}IN]-NU-U[Š] *li-tir-ra*, clearly indicating another value for ^{šam}IN-NU-UŠ beside *mastakal*, which may be a reference to ^{šam}ERI-AN-NA.

² Not *unqu* "ring", but a word from the root *kapāru* "wash away" (see *D.* 354, 171 (b)). From *DACG.* 92 it will be seen that there has always been a confusion between "white vitriol" (*aban*ZA-SUH), and alum, and it is very probable that we have the same confusion here. The obvious intention is to provide a means of washing (cf. *στυπτηρία*, *šU-GUR* = **lakpirtu*) with alum.

³ For the ritual with tamarisk in water cf. the numerous cylinder seals in which a branch, not dissimilar from a possible representation of a tamarisk, is placed upright in a pot between or near the worshipper and the god (Danthine, *Le Palmier-dattier*, figs. 523 ff.). The authoress of this latter work draws attention to the similar scene at Dura: "Le prêtre syrien semble déposer la plante, roseau ou tamaris (Fr. Cumont, *Fouilles de Doura-Europos* 67) dans le vase" (*ib.*, *Texte* 91). It may be that all this is symbolic of whatever use is made of the tamarisk in our Assyrian ritual.

The obvious washing-substance from tamarisk would be the ashes: *IB.* 17 speaks of the ashes of the *ahl*-tamarisk as deterative, and *LPG.* 441 says: "On emploie ses cendres [tamarix] pour l'extraction de la soude." "*T. gallica*," says *PC.* xxiv, 24, "is one of the species of this genus remarkable for the large quantity of sulphate of soda which its ashes contain." Since tamarisk is in common use in Baghdad for fuel (p. 279), the ash would be one of the most easily obtainable, and we may therefore accept the use of tamarisk in our rituals as indicating its ashes for washing purposes. Indeed, in several of these rituals, that most common of washing materials, alkali (*ululu*), is frequently absent, and this reinforces the theory for the use of tamarisk-ashes.

Next, cedar. In the ritual for the *barû*-priest (p. 40) this substance was apparently used for purifying and scenting the breath, and, if this be correct, it may be regarded as a perfume here.

As for the *Acorus calamus*, the stress again seems to be on its fragrance; it is true that the oil might possibly be used in soap-making, but the scent is more probably the part for which it is used. There would be no advantage in burning it for the ash.¹

The date-palm, again, is a difficulty. Actually "palm-oil" as we have it does not come from the date-palm, and this must almost certainly be eliminated as a possibility. But there is the fuller explanation of it perhaps having been the date-stone that was intended, *i.e.* another ash (p. 40). Yet again, it must be remembered that on p. 39 a "small palm" is mentioned, and also the "heart of the palm" (*i.e.* perhaps the crisp, edible head of the palm), and these again make the explanation difficult, if they are to be taken simply. Note, however, that a part ("die Scheiden") of the *Phoenix dactylifera* is used as a perfume in Palestine (*FJ*². iii, 95).

Nevertheless, almost everything points to the intention of providing a soap which, by magical use, will wash away the evil. Hence we should see in *šam*^m*mastakal*, *šam*^m*tullal*, and *šam*^m*DIL-BAT* some kind of soapwort (distinct from the *ululu*, the *šunân* of the Arabs, *i.e.* the alkali).

Let us now examine the characteristics of these three:—

1. *šam*^m*IN-NU-UŠ*, *mastakal*, *maltakal*, *martakal*, occurs thus in *MT.*: (1) *Simply: ext.*: Excessive menstruation, wrapped with bitumen in red and white wool, and sprinkled with powder of *aban*^{AD-BAR} (*DACG.* 160, basalt or lava) inserted in uterus, *KAR.* 194, i, 39. "Poison," †, poultice, *AM.* 98, 3, 8. Poultice, (*šam*^m*IN-UŠ*) †, Scheil, *RT.* 1901, 134, 6 (for this spelling, cf. Scheil, *RT.* 1900, 159). In *virility charm*, †, prob. wash, *Liebesz.* 52, 13. To avert evil presages from the King when driving, anoint with ? in fine oil (iâ BÂR-GA), Thureau-Dangin, *RA.* 1924, 135.

Int.: Uncertain, perhaps *stomachic*, fragmentary, bray, drink, *AM.* 57, 6, 5. Uncertain, †, drink without a meal, *AM.* 75, 1, iv, 13. To remove *sorcery*, with 31 others, drink, *AM.* 89, 1, 3. For difficult *childbirth*, with *cynoglossum* only, without a meal, bray, drink, *AM.* 67, 1, iv, 17. For some *female trouble*, with flour of roast corn only, in oil and beer drink, *AM.* 67, 1, iv, 5: alone, dry, bray, drink in beer, *KAR.* 194, iv, 13

¹ All travellers in the East will bear me out when I say that scent is there regarded with far higher favour than it is with us. Note also the perfuming of soap-balls with *Prunus mahaleb*, p. 308.

(similar to *nūhūrtu*, *Asa foetida*). Too much saliva, †, without a meal, in beer (prob. drink), *AM.* 31, 4, 11. When saliva is stopped, †, in *kurunnu*-beer (prob. drink), *ib.* 15.

To chew green (*aruqtu*) for sorcery, with green *annuhara* and [green(?)] thyme, *AM.* 85, 1, ii, 16.

Quantity: 10 carats, † (?), for cough, *AM.* 80, 2, 3 : 2 shekels, *AM.* 90, 1, r. 9.

(2) *Seed*: *ext.*: Feet, bray with seed of ^{am}*kamkadu* and apply, *AM.* 74, 1, iii, 1. To relieve muscles of hands and feet, †, apply, prob. *ext.*: *AM.* 98, 3, 18 + 39, 3, 4. Ointment for Hand of Ghost, †, *AM.* 94, 2, ii, 14 (cf. *Liebesz.* 50, 6).

Int.: Hand of Ghost, †, drink in beer, *AM.* 76, 1, 25.

(3) Uncertain part of ^{am}*IN-NU-UŠ*, †, rub on feet, *KAR.* 191, 4, which is much the same as, and perhaps dup. of *AM.* 69, 2, 2 ff., and 70, 7, i, 9 ff. (cf. *E.*, xiv, 45) (if so, it will vary with ^{am}*DIL-BAT*).

In *BRP.* iv, 37, 5 (*JRAS.* 1924, 452) note *A-RI-A NAM-LÚ-GÁL-LU* : ^{am}*mas-ta-kal* : *áš-šú* ^{am}*A-RI-A* : ^{am}*mas-ta-kal šá-niš* *A-RI-A* : *ri-lu-tú* "Human semen = ^{am}*mastakal*, since *A-RI-A* = ^{am}*mastakal*, or alternatively, semen". The plant grows in *usalli* (low grounds near water, apparently), *Maqlû*, iii, 177, cf. vi, 76 : and springs up in the *apsu* ("deep"), *Šurpu*, ix, 9. ^{am}*ERI-AN-NA* = ^{am}*mal-ta-kal* (*Pl.* 22, viii-vii, 53). From *HWB.* 434 ^{am}*ér-na-nu* : ^{am}*mal-ta-kal* (an additional equivalence ^{am}*IN-NU-UŠ* = *supahu*, manna). *IN-NU-UŠ* occurs in an OB. letter (*Kraus, MVAG.* 1931, 39).

It may also occur in the Chemical Texts in a small mutilated receipt (*K.* 6920, r. 8, *OTC.* pl. 4) : . . . [*ka*]-*al-gu-ga 1 šiqlu* *IN-N[U-UŠ]* [*ešteniš* (*niš*) *tuballal an-nu-u* [*u*(?), or *li*(?)] . . . " [So much *k*] *algugu* (red ochre), 1 shekel of *IN-N[U-UŠ]* ?] thou shalt mix together : this is . . . ". It is possible that an alkali is indicated, but the text is so mutilated as to provide little evidence.

2. ^{am}*Tu(l)-lal*, thus in *MT.* :—

(1) *Simply*: *Ext.*: Dry cough, †, bind on, *AM.* 50, 3, 2. [*Swelling*], pound with *Solanum*, in [beer]-yeast . . . *AM.* 73, 1, ii, 5. *Swelling*, †, dry, pound, bind on, *KAR.* 192, 27.

Int.: *Stomachic*, †, drink, *AM.* 87, 1, 11 ; *Kü.* ii, ii, 46. *Cough*, †, drink, *Kü.* i, i, 2. One of many against sorcery, drink, Boissier, *RS.* 1894, 137, ii, 4.

Uncertain use : For . . . "his semen unintentionally or not floweth", †, *AM.* 32, 1, 12 (a saliva-text ?).

(2) *Seed*: *Venereal*, alone, reduce, bray, fill the interior of penis, *AM.* 62, 1, ii, 4. *Temples*, †, in squeezed grapes drink, *CT.* xxiii, 46, iv, 5 (cf. S.818, Bezold, *Cat.* 1439).

(3) *PA.* (tops) : Uncertain use, *AM.* 101, 3, ii, 6.

We have already seen on p. 40 that ^{am}*tu(l)-lal* is one of the washing plants, and in this instance it is at once followed by the verb *utallal* (*i.e.* "he shall cleanse"), a word meaning the actual process of washing¹; the reading therefore must be certainly ^{am}*tu(l)-lal* "the 'thou-shalt-wash-plant'", Semitic, and not Sumerian.

¹ *E.g.* see *HWB.* 71, *s.v.* *elêlu*.

It is possible that this plant is used by the mother of Gilgamesh when she adorns herself and climbs up on the roof to make her prayer to the Sun-god on behalf of her son (*GE.* iii, ii, 1): (1) . . . *i-ru-ub*; (2) . . . *šamtu-lal*; (3) . . . *si-mat pag-ri-ša*; (4) . . . *si-mat ir-te-ša*; (5) . . . [*ú-k*]in-ma a-ga-ša ap-rat " . . . she entered, . . . *šamtu-lal* . . . the adornment of her body . . . the adornment of her breast, . . . she set, wearing her tiara ".

Again, in what is practically a ritual for *naḥšātu* (excessive menstruation), after threading nine minerals and tying seven and seven knots, *šam* *as* *zir* *šamtu-lal* (*Asa foetida* and *tu-lal*-sced) are to be included between the knots and the minerals, and the whole bound on the stomach of the woman (*KAR.* 194, 7). In this case we have to consider for what the purpose of the *Asa foetida* and the *šamtu-lal* are intended. The ritual doubtless intends that they are ultimately to be released when the seven and seven knots are untied, and we may see in them various possibilities: (1) the contrast in smell, between the unpleasant *Asa foetida* and the *šamtu-lal*; (2) the use of *Asa foetida* in hysteria, with a corresponding or contrasted use of the *šamtu-lal*; (3) the use of *šamtu-lal* as a washing plant, with a contrast in *Asa foetida*. I incline to the first, that we should see in *šamtu-lal* a perfume, which would correspond well with the passage in *GE.* quoted above; and if so, we must find some scented plant which is also to be used as a soapwort, or at least in soap.

The meaning "thou-shalt-wash" for the plant *šamtullal* at once suggests a similar one for *šammastakal* which is never written with a case-termination. This latter point at once indicates the word *kal* "all", and leaves us with the word *masta* as coming from *mesû* "to wash" (parallel to *bartu* "hunger" from *birû*), the word thus meaning "Wash-All".

3. *šam* DIL-BAT.

(A) *Pl.* 26, K. 14822, i-ii, joined to K. 10466, *Pl.* 32, i:

.....	<i>šam</i>
..... -GA	<i>šam</i> [DIL-BAT(?)]
..... -LUH	<i>šam</i> DIL-BAT
..... -GA(?)	<i>šam</i> DIL-BAT
.....	<i>šam</i> DIL-BAT
.....	<i>šam</i> DIL-BAT
.....	<i>šam</i> DIL-BAT
.....	<i>šam</i> DIL-BAT
.....	<i>šam</i> DIL-BAT
.....	[<i>šammas</i>]-ta-kal
.....	..... -i
.....

It occurs thus in *MT.*:

(1) *Simply: ext.: Head*, prob. alone, bray, anoint, *AM.* 3, 5, 5. Continuous pain in temples, dry alone, bind on in rose-water, *CT.* xxiii, 44, 8 (*cf. SM.* ii, 39, in headache ("caused by drinking wine")) "and on his head must be poured an infusion of chamomile-flowers, and oil of

roses or violets²). *Eyes*, inflamed, bray alone, bind on, *AM.* 12, 8, 11 (cf. 8, 1, 3 and *PRSM.* 1924, 23) : full of blood, with lupins in *himetu*-ghee and *nigibtu* (*Euphorbia*), *AM.* 8, 1, 32. *Feet*, †, rub with various oils, *AM.* 69, 2, 5 ; 70, 7, 10 : †, bathe, *AM.* 70, 3, i, 4. *Swelling*, †, poultice, *AM.* 100, 3, 13. "Poison and lassitude," ^{*sam*}*DIL-BAT RI-RI* (shredded), †, bathe, *AM.* 52, 5, 8. A blow on the "middle" (pelvis), so that the patient cannot walk, †, poultice, *AM.* 79, 1, 12 : for a blow, †, poultice, *AM.* 77, 8, 10 : when knocked unconscious (probably, see *AJSL.* 1930, 5), †, [apply], *AM.* 79, 1, 17.

Int. : Pain in breast ("lung-trouble"), †, drink, in beer or wine, *AM.* 48, 4, r. 10. *Stomach*, †, drink, *AM.* 48, 2, 6. (2) *Seed* : *ext.* : *Eyes*, inflamed, with dough in *pûru*-oil alone [apply], and then antimony, *AM.* 8, 1, 8 ff. (*dup.* 11, 2, 45 and *KAR.* 183, 11 ; see *PRSM.* 1924, 23). *Feet*, †, poultice, *AM.* 70, 7, i, 4 : in rose-water with seed of ^{*sam*}*EL*, bind, *AM.* 74, 1, iii, 8 : *feet* itching, with seed of ^{*sam*}*EL*, [apply], *AM.* 74, 1, ii, 36. *Swelling*, with seed of ^{*sam*}*EL*, in rose-water, *AM.* 75, 1, iv, 5. A blow, †, [apply], *AM.* 77, 2, 4.

Int. : some form of general neuralgia or debility, †, drink 3 grains, *AM.* 90, 1, iii, 21.

(3) *PA.* (tops) : *Anus*-trouble, with swelling, uncertain use, *AM.* 58, 2, 7.

In *ADD.* 1042 we find a collection of various vegetable-drugs mentioned, including, among others, *PA* (tops) of pomegranate, of grapes(?), of A-AM citron(?), of mulberry, of GI-BU, and then simple ^{*sam*}*šadanu*, ^{*sam*}*šasuntu* (manna), *cynoglossum*, ^{*sam*}*alamû*, ^{*sam*}*DIL-BAT*, *Asa foetida*, rose (I have corrected the published text with the tablet). This with the omission of ^{*sam*}*qurban eqli* would suggest that ^{*sam*}*DIL-BAT* here represents a common drug. It must be noted that the occurrence of ^{*sam*}*DIL-BAT*, while prominent in *MT.*, is not obvious in the Plant-lists, except in the one given on p. 43.

Briefly, the outstanding characteristics of these three plants are :

(1) ^{*sam*}*Mastakal*, simply, *ext.* for menstruation, poultice, and in virility charm : *int.*, difficult childbirth, some female trouble, saliva, cough, and probably stomach : its seeds, *ext.* as ointment : *int.* once. It is compared to human semen, and apparently grows on low ground near water.

(2) ^{*sam*}*Tu(l)lal*, simply, *ext.* for coughs and swellings : *int.*, coughs and stomach-trouble : its seeds for venereal disease introduced by penis, drink for some head trouble : the tops, uncertain use. It may be a perfume.

(3) ^{*sam*}*DIL-BAT*, simply, *ext.* for head, eyes, feet, swelling, and a blow : *int.* for lungs and stomach : its seeds *ext.* for eyes, feet, swelling, and a blow, and *int.* once : its tops probably for hæmorrhoids.

Taking next the possible soapworts for identification, the Greek *struthion* is certainly the most important, although its identification is not entirely certain. As a matter of fact, the evidence for the *struthion* according to Beckmann (*op. cit.* 98) shows that it is a thorny plant, of pleasant aspect without smell, with a large root, growing especially in Asia and Syria spontaneously, the green part being used for increasing the milk in sheep, and it is particularly noteworthy that Pliny says

"trans Euphratem laudatissima". Fuchs (Beckmann's *Hist. of Inv.*, 4th ed., ii, 100) thinks that this was *Saponaria officinalis* L., against Beckmann who identifies it with *Gypsophila struthium* L., which, he says, is still used in Italy and Spain. Fée (Bostock, *NH.* vol. iv, 149, n. 9), however, says: "Linnæus has 'pretended' . . . that the Spaniards still employ the root and stalk of the *Gypsophila* for the same purpose as the ancients did the same parts of the *Radicula*," but "he himself, however, though long resident in Spain, had never observed such to be the fact," and the description in Pliny (*NH.* xix, 18), he says, does not correspond with that of the *Gypsophila struthium*.

If we accept the *Saponaria* as the equivalent of *ṣam^mmastakal*, we shall find certain resemblances in *MT.* *S. officinalis* L. "foams when rubbed in water" (perhaps the Assyrian comparison to semen), is used for washing woollens, and medicinally is a bitter, aperitive tonic used for rheumatic affections, jaundice, and long-standing skin-troubles (*FF.* 1862, 57). *IMP.* No. 116 says that in India *S. Vaccaria* L. is used *int.* for gout and rheumatism and *ext.* for itch: *IB.*¹ 1286 says that the *saponaire* (Syr. 'adharyā, Arab. *šajarat abi mālik*) washes clothes, and that the leaves are used for poultices on the breast, and the root for atrabile. *LPG.* 407 says that the *Saponaria* of the East is richer in saponine than the native kind (France); root, leaves, and seeds are all used in medicine "contre les dartres squameuses, . . . l'ictère, dans le traitement des engorgements lymphatiques et des cachexis, la syphilis, les maladies de la peau et les catarrhes". Pliny's *struthion* (*NH.* xxiv, 58) has many medicinal properties; *int.* for cough, jaundice, and the chest, diuretic, laxative, and as a detergent on the uterus (like *ṣam^mmastakal*); and *ext.* on leprous sores, eyes, etc.

Saponaria and *Silene* are mentioned as occurring not far from Al-Hadhr (Ainsworth, *T.*, ii, 177), and *S. Vaccaria* L. at Qala'ah Sherghat (Herzfeld, *Beih.* 35). *S. officinalis* L. is cultivated in [Syria] for its saponaceous root used in washing woollens and for the manufacture of *ḥalāwī* (*FP.*² i, 163).

On the whole, therefore, there is every probability that *ṣam^mmastakal*, definitely a soapwort, is *struthion*, and probably *Saponaria*.

ṣam^mTullal is not so easy, inasmuch as, if we make *ṣam^mmastakal* = *struthion*, we have to seek for less easy soapworts. There is the *Gypsophila* already mentioned (*G. Rohejeka* Del., in Arabic *ruqaiqah* or *sirr*, *FP.*² i, 165, and *G. struthium* L., 'irq al-ḥulāwa, *FJ.* i, 635): but I cannot find that it is used in medicine. There is also the *Mesembryanthemum* (*Mesembryanthemum crystallinum* L. (Arab. *ghassūl*): *M. Forskalei* Hochst. (Arab. *ghāsūl*): *M. nodiflorum* L. (Arab. *ghāsūl*): *M. tortuosum* L. (*FJ.* i, 635 ff.: *FP.*² i, 486)), which are also soapworts. Note that *M. crystallinum* is burnt in the Canaries for its ashes for glass, and *M. nodiflorum* is used also for glass in Egypt, and in the manufacture of Morocco leather (*PC.* xv, 1839, 124). Olivier, *Voyage* iii, 77, speaks of the *M. copticum* used for soap; Ainsworth, *T.* ii, 301, mentions one species of *M.* on the banks of L. Urumiyah, and Herzfeld (*Beih.* 33) *M. nodiflorum* L.

¹ But he also speaks of the *Struthium* (No. 1179) under the name of *k-n-d-s* and *qūlyā* as a soapwort which washes clothes, is sharp-tasting, diuretic, and used by women for detersive pessaries. See also *FJ.* i, 639.

at Qala'ah Sherghat. "Mesembryanthema and asters cover the great level tracts of Babylonia, Chaldaea, and Susiana" (PC. xxv, 1843, 477). Here again, however, I cannot find that the *Mesembryanthemum* is used in medicine. *Mesembryanthemum Forskalei* Hochst., called *samḥ* in Palestine, is described by Doughty (AD. 312) as providing a seed for flour, and FCH. 48 describes this seed as coming from a *Mesembryanthemum* with very long fleshy leaves and a small daisy flower. We may also eliminate another soapwort, *Atriplex halimus* L., as being already identified with *šamzid-mā-laḥ* (p. 37).

There is a possibility that the *šamtullal* is the *Leontice leontopetalum* L., also a soapwort: Preuss (*Bib.-Talm. Med.* 431) says: "Die Wurzel von *Leontopetalon* resp. ihre Verwendung als Seife kennt, wie man gewöhnlich meint, erst die Mischna unter dem Namen *eschlag*, Gemara *schalgā* [cf. FJ.² i, 648]. . . . Für die Bedürfnisse der feineren Toilette benutzte man parfümierte Seifenpulver, die aber meist das Seifenkraut, *ahālā*, *Salsola*, als Grundlage hatten. Das Waschpulver *bardā* bestand aus gleichen Teilen Seifenkraut, Myrte (*āsā*) und Veilchen (*siglē*). Ferner gebraucht wurde Weihrauchpulver und *kusṣā de jāsmīn*, nach den Erklärern Sesamtrester, die man mit Jasminrosen weicht, dann trocknet und pulviert." It is called *ḥamīrat adhār* in Syria and Palestine (FP.² 1, 28), and was found at Qala'ah Sherghat (Herzfeld, *Beih.* 33).

According to FJ. i, 288, the root of the *Leontice leontopetalum* is used for itch, epilepsy, and snake bite. The fact that it is a perfume suggests an equivalence with *šamtullal*, but the medicinal use is not helpful.

In the case of *šam-dil-bat*, the Venus-flower, we might have assumed, as I suggested in AH. 69, that this was the daisy, from the daisy-like appearance of the Star of Venus on the Assyrian monuments, a flower sacred to the goddess. Indeed, we might have worked further afield and seen in it such wider application as is suggested by Christian tradition, wherein the Virgin Mary has absorbed many of the characteristics of the Great Mother of the Near East. The *Matricaria Parthenium* L., for instance, is of this class, and yet sufficiently near the daisy to suggest itself: its Arabic name is *šajarat maryam*, IB. 121.

Nevertheless we have certainly to look for a soapwort of some kind; it must be connected with Venus (or rayed like a daisy) and useful in medicine.

The best plant which I can suggest (but I do not feel happy about it) is the *Cyclamen*, *C. hederæfolium* L., being called in Arabic *baḥūr maryam*, *šajarat maryam* (Löw, *Ar. Pfl.* 307). *C. latifolium* (called "Shepherd's soap", FCH. 67) is still used as soap in Palestine. The *Cyclamen* root is said to cause abortion, is an active but dangerous purgative, and can be applied to scrofulous tumours as a cataplasm (LPG. 177).

III

VEGETABLES

VEGETABLES

A. ^{šam}SUMUN-DAR (ŠAR), *šumuttu*, *Beta vulgaris* L., beetroot.
^{šam}SUMUN¹-DAR = *šumuttu*, ^{šam}ŠU-SUMUN-DAR, ^{šam}mi-it-tum, ^{šam}si-mi-it-tum, ^{šam}GIŠ-ŠAR-GIŠ-ŠAR, ^{šam}si-ip-ru in one of the new Nineveh texts (cf. Pl. 32, S. 1328, 1-8). ^{šam}Šumuttum is amplified in CT. xi, 45, i, 5, thus:

ŠU-MU-UN-DA = ^{šam}DUL^{DUL} ŠE-ŠAR = ú-du-u(?) - min-na-bi-še-a-, (i.e. *nisigú*) = *šu-mut-tum* paralleled by CT. xii, 37, viii-vii, 40.

^{šam}KIL-ŠE-ŠAR = *šu-mut-tum* (dup. *ib.* 35, viii-vii, 23, . . . DUL-ŠE-ŠAR KIL = *šu-mut-tú*. This is further augmented by Mat. 86, 7-9, 17, 28, and Pl. 4, ix, 26-8: ^{šam}MAN-DU = *t(d)im-me-tú* = *šu-mut-tú*,² ^{šam}GIŠ-ŠAR = [*šu-mut-tu* ?]³ (cf. ^{šam}GIŠ-ŠAR-GIŠ-ŠAR above), MU-ŠAR = ŠU-u = *ma(?) - na-ḫa-tum*, ŠAL-DA-ŠAR = *m[i-it-tu]* (v. *mit-tum*) = *šu-mut-tú*.

In omens ^{šam}šumuttum occurs between ^{šam}murrānu and ^{šam}IM-MAN-DU (TR. 10, r. 7).

An interesting ritual (KAR. 73, 1 ff. trans. Ebeling ZDMG. 1920, 187) towards the end, prescribes braying ^{šam}ḪAR-ḪAR (mustard), ^{šam}KUR-KUR (hellebore), ^{šam}matqu (= ^{šam}arariānu, lupins), ^{šam}AŠ(?) (*Asa foetida*), ^{šam}SUMUN-DAR, and *sahlé*, together put into *kurunnu*-beer, and set before Gula. Apparently the intention of using such a heterogeneous collection of plants is to bring into play their various colours, respectively yellow, black, white, brown, red, green. The *Asa foetida* is the one doubtful component; we should have expected a blue here.

This is paralleled by KAR. 186, 48, one of several prescriptions against the *alú* which has seized on a man. The *alú* is the vampire (or even nightmare) described at length in CT. XVI, 27, 1 ff. (*Devils*, i, Tablet "B": Sem. Mag. 71, 81), so that the drugs are as likely to be magical as medical: bind on (AŠ-su) ^{šam}AŠ (*Asa foetida*), ^{šam}SUMUN-DAR (beetroot), ^{šam}BIR (lime), ^{šam}šalmu (a black plant).

It occurs thus in MT.:

(1) ^{šam}SUMUN-DAR:

(a) *Simply*: ext.: Bruise (*dikši*), †, poultice, KAR. 182, 36, †, lotion, KAR. 202, 43. *Hand of Ishtar*, †, bind on (AŠ-su), KAR. 186, 33. To keep away AN-TA-ŠUB (when the patient chokes and spits), †, bind on (AŠ-su), *ib.* r. 24.

Int.: *Strangury*, †, prob. drink, AM. 59, 1, 36. Prob. "when a man goes to a woman . . . to another woman goes", †, AM. 66, 1, 11. Uncertain disease, with seed of tamarisk, bray in beer [drink(?)] KAR. 186, 5.

Enema: *Stomachic*, †, Kü. ii, iii, 7.

¹ It was my former pupil, Dr. F. W. Geers, who pointed out to me that ^{šam}šu-an-dar (AJSL. 1937, 17, 15 ff.) is the same as ^{šam}SUMUN (i.e. BAD)-DAR, from a comparison of the spellings of the name of the canal *nār*Šu-mu-un-dar, *nār*Šu-man-dar, *nār*Šu-man-da-a[r], *nār*BAD-D[AR], *nār*Šu-mu-da-ri, Landsberger, OLZ. 1916, 33, for which I am most grateful. I see that Landsberger read the plant thus in ZDMG. 1920, 444.

² This line is not on Pl. 4.

³ This is apparently different from the simple GIŠ-ŠAR of MT. PA GIŠ-ŠAR *kulama* occurs in a prescription for feet and . . . , following the PA (tops) of many fruits, AM. 68, 1, 20: *inib* GIŠ-ŠAR similarly after other fruits for *qī mis[ilti]* (blains), AM. 77, 5, 11 ff., and *inib* GIŠ-ŠAR *kalama* similarly, to bathe, AM. 52, 5, 10. [See further on ^{šam}GIŠ-ŠAR, p. 51.]

Cf. *KUB.* iv, No. 48, ii, 3 ff. (*Liebesz.* 50), virility charm, †, etc.

(b) *zid* (powder): for *asidā* (foot-soles) (^{šam}*SUMUN-DAR-ŠAR*) alone, bray, mix in oil, bind, *AM.* 75, 1, iv, 22.

(2) ^{šam}*Šumuttu(m)*:

Quantity: [10] shekels, stomachic(?), †, *AM.* 42, 2, 8, *dup.* 57, 3, r. 8.

Fumigate: Ghost, one of 7, *AM.* 99, 3, 15, *dup.* *AM.* 78, 10, 3 ([^{šam}]*SUMUN-DAR*).

Uncertain use: one of 51 drugs to dissipate sorcery, *AM.* 87, 5, r. 5.

The obvious equivalent to the Sumerian ^{šam}*SUMUN-DAR* is the Arab. five-lettered *šavandar*, Syr. *šmatrāyā*, *Beta vulgaris* L., one of the *Chenopodiaceae*.¹ This is borne out (if I am correct) in taking *RA.* 1921, 5 (Scheil) as giving as an equation ^{šam}*GUG*: ^{šam}*šumuttum*, i.e. the "red plant". The first sign *SUMUN*, if given its normal Sumerian value *uš* or *mud* would mean "blood" (i.e. the beetroot colour), or, as *ZARA*, *šamū* "to spin", would suggest the shape either of a top (very much the shape of the beetroot), or of a spindle whorl. The second sign *DAR*, properly *D.* 114, would give *burrumu* "two-coloured, rolled, twisted", but as *D.* 113 (which has not the value *DAR*) we might see in it *sāmu* "red". It is therefore reasonable to see in ^{šam}*SUMUN-DAR* a plant perhaps of spinning-top shape, and red.

Next, the Semitic values. ^{šam}*Šumuttu*, ^{šam}*šimittu* (and *šimittu* *ŠAR* of *MB.* 23) are obviously loan-words from Sumerian: the Arabic and Syriac have kept the older form.² ^{šam}*Mittu* and ^{šam}*šipru* are not clear, but ^{šam}*šimmetu* again suggests *šamū* "to spin" (as in *SUMUN*?), i.e. a top, the form being perhaps parallel to *riqqū* (Heb. *rôqeah*?), *šiqqu*(?) (*saqū*, "to water, sprinkle").

Beta vulgaris var. *rapacea* Koch and var. *Cicla* L. (white and red beetroot) grow wild in Mesopotamia, and c. 1000 B.C. were both in Sicily (*FJ.* 2 i, 346: note in *ib.* 347 the suggestion that the Aram. *silqā* = "the Sicilian"). *B. vulgaris* L. in waste and sandy places, *FP.* 2 ii, 429.

In medicine *Beta vulgaris* L. is used in India by the application of its leaves to bruises and burns and its seeds are cooling and diaphoretic (*IMP.* 1066). Pliny (*NH.* xx, 27) prescribes it for many diseases (dysentery, chilblains, ulcers, and as diuretic). These coincide well with *MT.*

In the *VM.* we find a difficult passage: ^{šam}*šumuttum* is to be used (a) *ina zê amelûti* "in dung of men", and (b) *ina hulî ša api* ("on the rat (mouse) of the grove" (*Pl.* 27, K. 4431, 5, 6: *Pl.* 42, K. 8807, 5, 6; and K. 4163, 5, 6; *Mat.* 88, 1, 4, probably omitting (b). Although *hulî* is ordinarily "rat" or "mouse", the animal "mouse of the thicket" is not at present identifiable, and it may be an alchemists' synonym. It might conceivably be a cryptic term for some such thing as the galls of the tamarisk-grove (a mere suggestion) to which the use of beetroot is added to tan or dye. In this problem Mr. D. Burton,

¹ Other forms are *sūtār* for *Chenopodium murale* L. (*FP.* 2 ii, 430) and a Syr. form *šandar*, beetroot (*FJ.* i, 348). Other Arab. words for *Beta vulgaris* are *libdān*, *ḡirs al-kalb*, *fiḡl bi'l-lail* (*FP.* 2 ii, 429).

² The Syr. *šappir šarpē* "beautiful of leaves" for spinach (*FJ.* i, 352), and *sprg*, asparagus, are hardly probable. *Mittain* is the Arab. for *C. opulifolium* L. (Schräd.) (*FP.* 2 ii, 430).

M.B.E., D.Sc., at the Rose Hill Tannery, Bolton, a specialist in tanning, has with much expenditure of time and labour, done me the great kindness of trying to find a solution. He writes thus :

" I believe the explanation you are seeking lies in the following experiment : A piece of limed skin was taken and the hair removed. It was then treated with water containing beetroot. This not only removed the lime, but the skin became fallen (*i.e.* the swelling was completely removed) and it had a silky grain. This is exactly the effect produced by dog dung. The skin was then treated with urine. This is a weakly acid solution and had the same effect as a bran drench. The skin was then ready for tanning and I enclose a piece which has been tanned with a mixture of vegetable tanning materials.

" If one wished to tan the skins of rats or mice with the hair on, I think it would be possible to treat them with beetroot, then with urine, and then tan them. This treatment prior to tanning would tend to give softness. Beetroot alone would be more satisfactory.

" Beetroot has no tanning properties. I have proved this by tanning experiments and by the following analysis :—

Tanning matters absorbed by hide . . .	0·0
Soluble non-tanning matters . . .	6·8
Insoluble matters . . .	0·1
Water . . .	93·1
	<hr/>
	100·0

" I therefore conclude that it is reasonable to interpret your passage as beetroot followed by urine."

Even if Mr. Burton's careful experiments do not solve our problem outright, they throw a great light on the possible channels for exploration.

^{šam}GIŠ-ŠAR occurs in *MT.* for *mišilti* (blains) of the feet, along with cypress of the cemeteries, *kung[i]* (*Cyperus*), ^{šam}elpitu (rush), and one other, to be dried, pounded, and poulticed, *AM.* 79, 1, 55.

[A curious ritual occurs, *AM.* 15, 3, 7 ff. (No. 202, *JRAS.* 1937, 282), where, for a man who has trodden in pure (?) water (?), ^{šam}GIŠ-ŠAR is to be collected (*tatabbak*) on the bank of a river ; vessels are then to be filled with beer and put facing the ^{šam}GIŠ-ŠAR and bread placed in various " bends " of the man's limbs. Here ^{šam}GIŠ-ŠAR suggests merely " vegetables ", but it is entirely doubtful.]

B. *Laptu* (ŠAR), *Brassica rapa* L., turnip.

Long ago pointed out as the same as the Aram. *laphta* (*MA.* 492). The colour is obviously white from *CT.* xxiii, 10, (14) *kima lapti lipzû panu-ka* " may thy face be white like *lapti* ", and *ib.* (19) *kima zir lapti lipšû panušu*. *Zir lapti*, doubtless on account of its whiteness, is used in contrast to the red on a red thread, *ib.* 24. Hesychius' gloss λάφα is quoted in *AF.* 57.

In *MB.* 40 ff. we find *silqa* ŠAR (*beta vulgaris*, Arab. *silqā*, *MA.* 763¹; *lapti* ŠAR, *puglu* ŠAR (radish), and the uncertain vegetables *nanšabu* ŠAR, *šassari* ŠAR, *MAR-GAL-BAB* ŠAR (if this is the right way to read it), and *nadal* ŠAR. [*Lapat armanni* occurs in *MT.* : " when a ghost lies on a man," †, mix in cedar-blood, " in fire " (fumigate),

¹ Cf. *Nbn.* 386, 12, *si-il-qa-a-tú*.

AM. 99, 3, 11 (dup. 33, 313 : 82, 4, 9 : and KAR. 182, r. 15). VM. (Mat. 88, i, 61) gives

^{is}la-pát ra-ni | [ina DINGIR-NIN]PÍŠ ("on a mongoose")

Pl. 42, K. 4140 B, 11 : K. "11386",¹ 11 : Pl. 44, K. 4152, 15 :

^{is}la-pat ar-man-ni | ina DINGIR[NIN-PÍŠ]

It is thus used in connection with the mongoose (better than "cat", which I suggested, JRAS. 1929, 341, see Landsberger, *Fauna*, 110). VAT. 9000 indicates that it is a gum from a thorn (p. 13), and its synonym there, ^{sa}mGÁN-ZI ša-šadi(?), suggests a narcotic.]

C. 1. GA-RAŠ-ŠAR, *karašu*, *Allium Porrum* L., leek : *bišru*, *Allium Ceba*, onion.

2. ŠÈ-ŠAR, *šumu*, *Allium sativum* L., garlic.

3. ŠÈ-SIKIL-ŠAR, prob. *sikillum*, (wild) onion.

4. *Mirga* ŠAR.

CT. xix, 50, gives :

	[GA-RAŠ]-ŠAR	<i>ka-ra-[šu]</i>
	[GA-RAŠ-SA]G-ŠAR ²	<i>gi-ir-ša-t[i]</i>
	[GA-RAŠ- . . (?)] KIN-ŠAR	<i>pir-³</i>
	[GA-RAŠ-GAR-GI]D-DA-ŠAR	<i>uš-šu-ra-a-ti</i>
10.	[GA-RA]Š-[GAR-KU]D-DA-ŠAR ³	<i>ki-is-mu</i>
	. . . . LAL-GA-RAŠ-ŠAR	<i>ši-ni-tú</i>
	. . . . LAL-GA-RAŠ-ŠAR : <i>bi-iš-ru</i>	<i>ša 30-ŠAR : bi-iš-ru</i>
	[Ú]R-GAR-RAŠ-SAR	<i>iš-di ka-ra-ši</i>
	. . . GA-RAŠ-ŠAR	<i>iš-di ka-ra-ši</i>
15.	NUMUN-GA-RAŠ-ŠAR	<i>zir ka-ra-ši</i>

Mat. 86, 7-9, 29, and 12-10, 1-2.

29.	GA ⁴ -R[AŠ]-ŠAR	<i>bi-iš-ru</i>	<i>gir-ša(?)⁵ [ti(?)]</i>
1.	GA-RAŠ-GAR-KUD-DA-ŠAR	<i>ki-is-mu</i>	<i>la-</i>
2.	GA-RAŠ-GAR-GID-DA-ŠAR	<i>šu(?)</i> -uš-ra-tú ⁶	<i>mir-[ga]⁷</i>

The first section in MB. gives ŠÈ-ŠAR, ŠÈ-SIKIL-ŠAR, GA-RAŠ-ŠAR, and *mi-ir-ga* ŠAR.

Various species of these vegetables are given by D. 164, 62 : cf. also his *Der Gemüsebau bei den alten Sumerern*, Orntl. 17, 24, [also *Analect. Orient.* 2, p. 88] which gives several kinds for the older Sumerian period : ŠÈ, ŠÈ-GU(D), ŠÈ-TILMUN, ŠÈ-SIKIL, ŠÈ-LÁM-MA(?), (ŠÈ)za-*ha-ti*,⁸ ŠÈ-ŠÁG, GU-GÚ-GÚ, GÚ-MUN, ší-LUM, ŠE-LÙ (coriander), cf. also GÚ-GÚ-GU(D), *ib.* 29.

1. GA-RAŠ-ŠAR, *karašu*, Syr. *karthá*, *k'ēreshah*, *Allium Porrum* L., the leek (Meissner, ZA. 1892, 292 : see FJ. ii, 131). It was grown in gardens as far back as Sin-muballit's time (c. 1950 B.C., Langdon, RA.

¹ This must be K. 11368, a correction which I owe to my pupil Dr. F. W. Geers.

² Restore from *Vorderas. Schrift.* ix, No. 26, 5.

³ Cf. ^{sa}mGAR-KUD-DA = ^{sa}m , Pl. 26, 81-2-4, 271, 7.

⁴ Or to be restored from l. 12 above : see DACG. 55.

⁵ Text apparently *zik* (?) or *lil* (?).

⁶ Cf. *uššuráti*, l. 9.

⁷ Suggested by MB. 4.

⁸ Occurring as *za-*ha-tin**ŠAR, p. 54.

1927, 91, *ana gušari* GA-RAŠ-ŠAR-ŠAG) down to Merodach-Baladan (i.e. MB.). In a mythical text it represents *šarat suhātī-šu* "the hair of his upper lip" (Tod. 32, 6), evidently with reference to its long thin shoots. One of the forms of native arsenic, [aš]qīqū or ašgikū,¹ is given the name *inib karaši* "fruit of leek" because of the garlic-like smell of arsenic given off when it is roasted (DACG. 55).

It occurs thus in MT.:

(1) *Simply: ext.; Tooth*, slit and rubbed alone on the root (*egar*), AM. 36, 2, 11. *Uterus-trouble*, GA, milk (?) and (?) of (?) leek, bray, anoint, and insert in uterus, KAR. 195, 26.

(2) *Seed: ext.:* itch or ringworm (*kurari*), with castor-oil and *šamšalamtu*, bray [apply head], AM. 5, 5, 4. Against *grey hair*, †, anoint, AM. 4, 1, 24. Uncertain, AM. 27, 6, 11.

Int.: *Stomach*, GA-RAŠ-ŠAR *bu-ut-la-ti*² . . alone [in] milk drink, Kü. ii, i, 19.

(3) *Fruit:* trouble with *saliva* and *stomach*, †, poultice, Kü. ii, iv, 30.

There were various tabus on eating leeks: *šam*MÁ(!)-RAŠ-ŠAR and ŠE-LÜ-ŠAR (coriander), not to be eaten by one who has eye-trouble, KAR. 203, ix-vii, 38. The root is not to be eaten on the 7th of Kislev, or the eater will have a worm (*quqanu*), KAR. 178, r. iv, 57 (cf. *ib.* 55, fish (and) GA-RAŠ-ŠAR prohibited, lest a scorpion sting him). A *šam*UŠ *ga-ra-še* is mentioned, Scheil, RA. 1921, 4.

According to Pliny (NH. xx, 23) it is garlic (not leek) which is useful in hollow teeth, but he gives many internal remedies from leeks, e.g. in cases of uterine trouble (NH. xx, 21, 22), and "a decoction of the outer coat [of the *porrum capitatum*] acts as a dye upon grey hair" (*ib.* 22), and he mentions the leek as aperient (*ib.* 21). In India garlic is used ext. to prevent hair turning grey (IMP. ii, 1295).

Ainsworth (*Personal Narr.* i, 227) mentions the natives near Sarisat (Kara Bambuch) eating the leek freely.

From this we can go on to the more specialized word [GA-RAŠ-SA]G-ŠAR, *giršati*, which, from the inclusion of the word SAG "head", suggests that we have here the form of leek called by the Syrians *qaphlūtā*: "So erhält man porri caput Col. xi, 3, Lenz 84, 87, capitatum, kephalōton, Ath. ix, 371, schon bei Theophrast, opp. karton, sectile, tonsile porrum, Salm. Plin. Ex. 703. Diese zwei Porreesorten wurden im Orient als *k'rēšāh*, *krthi* Schnittporree, und *kphlūt* Kopfporree unterschieden" (FJ. ii, 134). If [GA-RAS-ŠA]G-SAR is the *qphlūt*, [GA-RAŠ . . . (?)]-KIN-ŠAR, *pir*, may be the other: "Die grasgrüne, dicht gesäte Art des Porree (Plin. 19, 33, herbaceum) hiess alt-hebraisch *hāšīr*, Gras, aram. *krthi* 'das Abgeschnittene'" (FJ. ii, 133). If this meaning can be maintained the word *pir* suggests the Assyrian root *parū* "cut, cut off".

Giršati looks as if it were a doublet of *karašu*, but the genitive form is peculiar.

2. SĒ-ŠAR, *šūmu*, Heb. *šūm*, long accepted as *Allium sativum* L., garlic. It is found in very early texts (Deimel, *Fara*, ii, 59: VAT. 12425, v. 20) and in Rim-Sin's time, c. 1920 B.C., e.g. $\frac{1}{2}$ GÚ *šum* ŠAR (Charles

¹ Cf. the Arabic *šakk*, arsenic, the origin of the word being the Sumerian *an*AŠ-GE₁-GE₂, based on AŠ, the base of the word for *Asa fatida*.

² This may be the Arab. *buṭṭayr*, *Allium Sinaiticum* Boiss., FJ. ii, 149.

F. Jean, *Bab.* 1929-1930, xi, 178, 5).¹ The quantities in late Bab. times are usually reckoned by the *gillu* (Heb. *g'dhilim* twisted threads) like our "ropes of onions" (e.g. 5,500 *gūd-dil ša sē-šār*, *Cyrus*, No. 76, 1 : 5,500 *gūd-dil ina sē-šār kārī ša šarri*, *Nbk.* 397, etc.). In the time of Samsuiluna (c. 1900 B.C., C.-F. Jean, *RA.* 1927, 2) we find "fish of the sea, dates, and sē-šār", which looks as if it were meant to be used as a certain species of onion, is used in Preuss, *Bib.-Talm. Med.*, 669, "*bâcêl qaplût* den Man an Fische tut, im Restaurant aber mit Mohn und Pfaumen zusammen serviert." During the same reign a tablet mentions 1 (*gur*), 100 (*qa*) of GUR-SÈ-ŠAR, 160 (*qa*) of SÈ *sikil-hum* ŠAR (onions) and 40 (*qa*) of *za-ḥa-tin* ŠAR² (Schoil, *RA.* 1918, 191). A particular kind came from Tilmun, SÈ-NI-TUK (*D.* 164, 51).

SÈ-ŠAR is used thus in *MT.* :

Simply: *ext.*: Teeth aching, with ^{am}*ḥašša*, *AM.* 105, 1, 18. Ghost, †, [rub(?)] on in cedar-blood, *AM.* 99, 3, 12 (I doubt if fumigation is intended here, although such a procedure is indicated in some of the other prescriptions). Note SÈ-ŠAR *šir-rum* for "a fall of the entrails", *AM.* 61, 5, 8, *dup.* 62, 1, and cf. SÈ *šir-rum*, *AM.* 34, 1, 11 : 53, 1, iv, 3 : 58, 1, 5.

Int.: *Strangury*, bray, alone, drink in oil and *kurunnu*-beer, *KAR.* 203, i, 28. *Bile*, bray alone, drink in water, *Kü.* iii, i, 14 : *Kü.* iii, ii, 73 (followed in this case by *iarrum*). *Sorcery*, bray alone, and eat in AMA-RIG (*sic*, re-exd.), *AM.* 85, 1, 1.³

Note the skin (*šār*), to be used for eyes, as amulet on neck, †, *AM.* 14, 3, 14, and a similar method for stiff neck, †, *AM.* 47, 3, iii, 10. Neither garlic, onions, nor leeks to be eaten when there is stomach-trouble, *Kü.* i, ii, 29, and of the first two, cf. *ib.* ii, ii, 37. It is advised not to eat SÈ-ŠAR on the twelfth of Tisri lest a scorpion sting the man (*KAR.* 177, r. 11). According to Sabb. 110 (*FJ.* ii, 134) leeks are bad for the teeth, but useful for bowels. Garlic is prescribed for teeth in E. Galician and also in Jewish folk-medicine (*ib.* 143) for toothache, a hazel-nut shell is filled with garlic which has been rubbed down, and this is laid on the tooth. Garlic was used in medicine pounded and rubbed in oil (*ib.* 141), and this is evidently indicated in En-annatum's inscription on a stone mortar dedicated to Ningirsu as a BUR-SUM-GAZ ("un recipient en pierre à broyer l'oignon", Thureau-Dangin, *ISA.* 51). *IMP.* ii, 1294, says that garlic is diuretic and used for stomach-troubles, and even as a poultice for the bladder. Pliny (*NH.* xx, 23) gives a long series of prescriptions for scrofulous swellings on the neck, toothache, etc. In Assyrian magic (*Šurpu* V-VI, 52 and 60) it is used like the *pikurtu*, the wool, and the goat's hair, which are all symbolically shredded with appropriate rites that the tabu on the patient may be removed.

3. SÈ-SIKIL-ŠAR, with probable Semitic equivalent *sikillum* ŠAR. It has all the appearance of being distinct from "garlic"; in the hemerologies (e.g. *KAR.* 147, 6, 24 : 177, r. iii, 12) it follows the prohibition against garlic quoted above, p. 53, the risk of eating ^{am}SÈ-SIKIL on certain days being that *šurub libbi* will result. The name SÈ-SIKIL-ŠAR

¹ No. 27, but 71 in *Contrats de Larsa*.

² Occurring as (SÈ)za-ḥa-ti, p. 52.

³ Does this mean that the patient is impotent? Garlic was used as an aphrodisiac in later times, e.g. Preuss, *Bib.-Talm.-Med.* 538 : cf. *FJ.*² ii, 143.

suggests the "bright garlic", and it seems probable that it is the onion. The only objection to this is that *bišru*, the Heb. *bēšēl*, is given (on p. 52) as equivalent of GA(?)-[RAŠ]-ŠAR and *gir-zik*(?)... which must be the *gi-ir-ša-t[i]* of p. 52, the "head-leek". Nevertheless Arabic supplies *siqil* (modern Iraqi Arabic *sijil*, Weissbach, *LSS.* 1930, 321 ff.) for "wild onion", and it would therefore appear that the value SIKIL (i.e. EL) represents the (wild) onion, taken over in Semitic as *sikillum*.¹

SÈ-SIKIL is found in Shulgi's time (e.g. *Turk.* No. 121, iv, 9). (Note SÈ-SIKIL, Agade-period, De Genouillac, *ITT.* ii, 22, No. 4405 (pl. 66): SÈ-SIKIL-[ŠAR], Pinches, *CT.* vi, 13, 15, a, and SÈ *sikil-lum* [ŠAR], *ib.* 16, a, and SÈ *sikil-lum* HUL(?)-ŠI(?)-[ŠAR], *ib.* 17, a: cf. *D.* 164, 62 ff.)

The word is sparingly used in *MT.*: ears, *AM.* 34, 1, 36 (SÈ-SIKIL). This is paralleled in Pliny, *NH.* xxix, 39, where onions and garlic mixed with fat or other ingredients are recommended to be inserted in the ear. For *dryness of the eyes* the Assyrians used SÈ-*sikil-la* with ^{šam}*hašša* drunk in beer, the eyes being [anointed] with oil, *AM.* 8, 1, 11. The skin of it (BAR SÈ-SIKIL-ŠAR) is used, †, for an uncertain disease, *KAR.* 205, 16.

Of the Squill, *FCH.* 35 says that the authors have come across no case of its use as a medicinal plant in their district (in Palestine).

4. *Mirga* ŠAR has a similarity of sound with the Arabic *marjān* some kind of spring cabbage, but the Sumerian equivalence on p. 52 suggests that we must have a definitely alliaceous plant here. *Uššurati*, its synonym, may well be the Arabic *'unṣul*, *Urginea scilla* Steinh., squill: *kisimu* may be the Syr. *šamkê*, some form of *Cepae*, *bolbos*, *Muscari comosum*, *FJ.* ii, 186. The "Of-30 plant", as *bišru* "onion", must represent the layers of skins (*DACG.* 179), like ^{aban}*ša* + 20, possibly talc (*ib.* 180).

D. 1. ZAG-ĦI-LI-ŠAR, ^{šam}*sahlê*, *Lepidium sativum* L., cress.

2. ^{šam}*Kudimeru*, ^{šam}*kudimeranu*, the same.

3. ^{šam}*Sahlānu*, perhaps the wild variety of the above.

Pl. 34, K. 4565, 35-41; 108860, *CT.* xxxvii, 30, ii, 40-4: *VAT.* 9000:

^{šam} <i>ku-di-me-ra-nu</i>	^{šam} <i>ku-di-me-[ru]</i>
2 ^{šam} <i>ha-ra-zi-uš</i> 3	^{šam} „ <i>ina māi</i> <i>Ħat-ti</i>
^{šam} <i>ha-ra-zi</i> DIR 4	^{šam} „ <i>ina māi</i> <i>Ħat-[ti]</i> 5
^{šam} <i>bi-zu</i> 6 <i>na</i>	^{šam} <i>sah-la-[nu]</i> 7
^{šam} <i>kiš-ka-ra</i> 8 <i>ni</i> 9	^{šam} <i>sah-la-[nu]</i> 7
^{šam} <i>tup</i> 10 <i>te-e</i>	[^{šam}] <i>sah-la-[nu]</i> 7
^{šam} <i>a-ku-ši-mu</i> 11	^{šam} <i>sah-la-a-nu</i>

¹ The similarity in sound to *scilla* is perhaps only a coincidence.

² 108860 adds as an additional line, ^{šam}*ditto* = ^{šam} „ . . .

³ *ib.* *áš*.

⁴ *ib.* *un.*, probably more correct than DIR (*VAT.* 9000), which would appear to be a mistake.

⁵ *VAT.* 9000, ^{šam}*sah-la-a-nu*.

⁶ Apparently on the tablet a gloss is added which I cannot read satisfactorily; the word is so evenly divided over the space that ^{šam}*bi-zu-na* appears to be correct. 108860 omits this line.

⁷ *VAT.* ^{šam} „ „

⁸ 108860 *la*.

⁹ *ib.* adds BAD.

¹⁰ *ib.* ^{šam}*tu-ub-ba* (!) (= *te*) -e (see p. 60).

¹¹ *ib.* (blank) = ^{šam} „ . . .

The connection of this section with *sahlê* appears certain from *Pl.* 37, 81-2-4, 264, which gives :

1.	<i>šam</i>
2.	<i>šam</i> ^a -[<i>ku-ši-ma-nu</i>]
3.	<i>šam</i> ^{sah} - <i>li-e</i>
4.	<i>šam</i> ^{me} - <i>me</i> -[<i>tú</i>] ¹
etc.	

1. The reading of the sibilant in *sahlê* is certainly *s* not *š*. Landsberger, *OLZ.* 1922, 343, quotes *sa-aḥ-li-i* from *Vorderas. Schrift.* xvi, 102, 25 (cf. *AM.* 96, 1, 8 ff.), and the pun in *Maqlû* v, 32, *kima* ^{šam}ZAG-ḪI-LI-ŠAR *lišhuluši kišpuša* "like *sahlê* may her sorcery prick her". The Assyrian has the correct root here,² since the pungency of the *Lepidium sativum* is well known. A form *ša-aḥ-li-e* occurs (at Susa, Scheil, *MMAP.* xxiii, 35, mixed (*mezu*) along with *šê* and *kibti*.

In *AH.* 126 I was entirely wrong in identifying *sahlê* with *Lolium temulentum* L., having been led astray partly by its use in the text which describes an Assyrian king scattering salt and *sahlê* on the land of *Elam* (*naḡê mā Elamti*^{ki} *ušaḥrib tābtu* ^{šam}*sahlê* ŠAR *usappiḥa širuššun*, *VR.* 6, vi, 78-80), which I took to indicate that it was the darnel of the NT. Moreover, there was the Arabic *šailam* (also *šailūmā* in Syriac) as a possible philological equivalent for *sahlê*, a word for the more usual *zawān* "tares" (*IB.* 1370). Besides, *sahlê* is found also in connection with bread in *AM.* 34, 1, 6 : 35, 1, 9 : and prob. 105, 13 ; darnel has, as is well known, frequently been introduced into bread, in spite of its ultimate deleterious effects (Stillé and Maisch, *National Dispensatory* 597), and it has been used as a potion when macerated in wine to produce drunkenness and sleep (*IB.*, *ib.*), and it had a certain medical value at one time.

But Landsberger's ingenious explanation³ of our Assyrian text, I am now convinced, cleared up the difficulty, he having compared the action of the king in Elam with that of a Persian king who sowed the fields with *bar gann (Syr., mustard, from Nöldeke in Löw, *Ar. Pfl.* 427). It was Hrozný (*Getr.* 179) who rightly compared it with the Mishn. *š^ehālīm*, *Lepidium sativum* L., *κάρδαμον*, although he, while recognizing it as *Gartenkresse*, suggested that it might be mustard.⁴ This latter is, of course, unnecessary, since the *Lepidium*, although having much of the qualities of the mustard, is distinct.*

The seed of *κάρδαμον* was bruised and eaten like our mustard, according to Xenophon (*Cyr.* 1, 2, 8), esp. by the Persians, and Pliny (*NH.* xx, 50) says that the best cress (*nasturtium*) is the Babylonian, the wild variety having the same qualities as the cultivated sort, but being more powerful (note also *FJ.* i, 509). Joret (*Les Plantes dans l'Antiquité*,

¹ Sequence from *VAT.* and *VM.*

² Cf. in *MT.*, of feet and shins, *ušaḥḥalašu*, *KAR.* 191, 16 : *AM.* 70, 7, 3 : the upper part of her womb *ušaḥāšī*, *KAR.* 195, r. 16. *Sah-lu-u* occurs *AM.* 16, 1, 26 : 39, 1, 43, and *sah-li-e*, 15, 6, 10 : the *dup.* 16, 4, 4, and 64, 1, 35 show ZAG-ḪI-LI varying with *sah-li-e*.

³ *OLZ.* 1922, 343.

⁴ In the Ras Shamra texts Dhorme compares the *šhl* with the Assyr. *šahullatu*, see Virolleaud, *Glecs.* i, 24.

66) says "le cresson ou la roquette et le persil, comme l'ail et même l'oignon, sont moins des légumes véritables que des condiments" (in Persia). Galen (quoted Gerarde, *Herball*, 250) says that cresses may be eaten with bread *veluti obsonium*, as the custom was among the Spartans. Herzfeld (*Beih.* 34) mentions *L. sativum* L. as a garden-plant at Qala'ah Sherghat. It is cultivated throughout India (*IMP.* 196), the seed being of a reddish colour without odour, but with a pungent and mucilaginous taste (*BMM.* 151 ff.).

The use of *sahlê* as a food in everyday life goes back certainly as far as the 3rd Dyn. of Ur, the seed being mentioned, e.g. in De Genouillac, *ITT.* No. 892, iv, 9 : No. 5926, 3. In Pinches, *Amherst Tablets*, No. 69, i, 7, 14 *ga* of ZAG-ĤI-LI-seed is quoted along with "10 *gur* 240" of "royal pulse",¹ which shows the relative proportions of the two in ordinary use : the seed mentioned in Shulgi's time (*Turk.* 121, iii, 10) : on a vocabulary of the Ur period the seed of ZAG(!)-ĤI-LI-ŠAR occurs alongside the seed of GA-RAŠ-ŠAR (leeks), seeds of LU-ÚB-ŠAR (beans), and seed of UR-LAL-ŠAR (Scheil, *RA.* 1921, 60, 29-32). An OB. letter (Kraus, *MVAG.* 1931, 35) mentions the sending of "60 *ga* of ZAG-ĤI-LI-A-ŠAR", and another (51) speaks of *ki-is-si-bi-ir-i u sa-ah-li-i* "coriander and cress".

This use continues down to late Bab. times : cf. *kurmatim* ^{bi-a}-(tim) *sahlê šamni NIG-GÁL-LA parzilli* "rations, cress, oil, a sickle (?)² of iron" (Ebeling, *Neub. Briefe*, C. 136, p. 111) : "2 *pi* of ŠE-BAR (barley), 2 *pi* 18 (*ga*) of dates, salt, *sahlê*" are the food for the month of Tebet for a boatman (*Nbn.* 925) : oil, salt, and *sahlê ša šattu-u-[su]ana imeri-šunu bêlu liškun*, i.e. the food for the year³ to be sent by donkey (Ebeling, *ib.* C. 85, p. 240 ; cf. *ib.* K. 16) ; *sahlê ša ragqati ša imerêpi* (*ib.* C. 107, p. 87) : it is measured by the *gur* in *Cyrus* 54. It was eaten with bread : *sahlê ša mimma ana lib NU-RU ina GAR-ZÍZ-AN-NA ikkal* "cress, in which nothing has been put, in wheaten bread he shall eat" (*AM.* 35, 2, 8) : . . . *sahlê itti GAR-ZÍZ-A-AN ikkalu*⁴ "cress with wheaten bread they shall eat" (*AM.* 34, 1, 6) : . . . *ma sahlê šar GAR-ZÍZ-AN-NA buhram saluppū ikkalu*⁵ "cress, wheaten bread . . . , dates, they shall eat" (*AM.* 35, 1, 9) : *hibza ina sahlê ikkal* "bread with cress he shall eat" (*AM.* 105, 13) (all four of the Late Assyr. Period). Indeed, in a ritual text (*KAR.* 234, 25) ZID-DA and *sahlê*, flour and cress, are prescribed mixed together.

The *Lepidium latifolium* L. serves for sauces (*FJ.* i, 505). It has always been the custom in the Near East to include flavours in bread : in Mosul nowadays they mix fennel-seeds, *Prunus mahaleb* L. (the stones of the sweet-cherry), and *Rocella Montagnei* Belanger (a lichen), and include it in the dough : or, of course, add the seeds of *Nigella sativa* L., as in Egypt, where the cakes are also sprinkled with the seeds of *Nigella sativa*, *kamûn aswad*, *simsim* (sesame) and caraway (Wilkinson, *Anc. Eg.* ii, 386). Lane (*Thousand and One Nights* i, 134) instances the meal made in Egypt by the poorer people of bread with a mixture called *duggeh* of salt, pepper, *zaatar* (or wild marjoram) or mint or cummin

¹ 10 240 GÚ GUR LUGAL.

² Dougherty, *Archives*, No. 71, takes this to be the Arab. *minjal*. The *minjal* (pronounced *minyāl*), as I saw it in Mesopotamia, is a serrated, curved knife of a sickle shape.

³ This food for the year shows that *sahlê* means the seed (which would last a long time) and not the plant itself.

seed, and with coriander seed, cinnamon, sesame, or chickpeas, or a mixture of them, each mouthful of bread being dipped in it.

Sahlê is forbidden in certain ritual performances: "On the days when thou doest this,¹ if he be a male he shall not eat *sahlê*: if a woman, she shall not spin with a spindle (nor) eat *sahlê*", *KAR.* 43, r. 5, 6. Obviously cress was part of the daily diet in Mesopotamia from the earliest times.

A special grinder or pestle and mortar were used in preparing it: note *Pl.* 16, S. 1805, 8-9, and *Mat.* 52, iii, 3-4, in conjunction with *CT.* xviii, 26; *Rm.* 339, 11-12:

<i>aban</i> NA-ZAG- <i>ĥi</i> -LI-ŠAR	|	<i>ur-šu</i>	|	<i>ma-zuk-tu</i>
<i>aban</i> NA-ŠU ² -ZAG- <i>ĥi</i> -LI-ŠAR	|	<i>i-lit</i> „	|	<i>i-lit</i> „

and ii *R.* 30, 1, c:

*aban*NA-ZAG-*ĥi*-LI-ŠAR | *e-lit ur-ši*

Mazukta is from *zâku* "to crush, pound" (*E.* xiii, 6). The *ilit* must be the upper stone, and the *uršu* or *mazuktu* the main, lower stone on which the cress is crushed. A special description is given in *CT.* xxiii, 23, 10 (dup. *KAR.* 202, i, 15) (*AJSL.* 1937, 220): 10 *šiglu sahlê ša KA* *abanurši ša siliqqa* NU-RU-A (*tâbtu*) *tâbatu* NU *šulputu* 5 *šiglu sahlê ina* GAR-ZÍZ-AN-NA *bašli* . . . *ikkal* 5 *šiglu sahlê ūtti* ½ *qa šikari tadâk išatti* "10 shekels of cress which the mouth of a grinder has not let go for the baking (?), (nor salt), nor vinegar destroyed; 5 shekels of cress baked in wheaten bread . . . he shall eat, 5 shekels of cress thou shalt pound, with ½ *qa* of beer he shall drink". The *aban*NA-ZAG-*ĥi*-LI-ŠAR, the special grinder for cress, is not necessarily confined in its use to this vegetable: it is used also for grinding GAB-ŠE-GIŠ-NI (mucilage of sesame) and "doves' dung" (carob-pods), *KAR.* 195, 4, as well as other drugs, *AM.* 40, 1, 63: particularly *zir* ^{*šam*}*KI*-^{*d*}*MER* ("seed of manna"), *CT.* xxiii, 41, 14, like the manna of Num. xi, 8: salt, *AM.* 14, 8, 7: and *abanur-ši* for grinding various drugs, *CT.* xxiii, 50, 17. In *AM.* 24, 5, 16, and 36, 2, 9 (both for some mouth-trouble), the patient is directed to lick the *aban*NA-ZAG-*ĥi*-LI, where doubtless the pounded cress seeds have left much of their juice behind, which would, of course, be pungent and sialogogue.

abanĥAR is another word for the mill in which this plant is crushed (*CT.* xxiii, 23, 3). The word for the actual pounding is *maĥâšu* (i.e. ZAG-*ĥi*-LI-A-ŠU-RA-RA=, (i.e. *maĥâšu*) *šá saĥ-lî-e*, *CT.* xii, 42, 42, a, preceding ŠE-ŠU-RA-RA=, (*maĥâšu*) *ša še-im* (i.e. of corn). (For other words indicating the crushing of *sahlê* see p. 60.)

Sahlê is therefore the seed of the ordinary cardamon, cress, in daily use with bread, and having a special grinding-mill. We have next to consider the form ^{*šam*}*sahlânu* (= ^{*šam*}*kudimeru*). ^{*šam*}*Kudimeru* is brayed dry in oil for a hollow tooth, *Pl.* 23, K. 259, 8, dup. *KAR.* 203, i 8: *sahlânu* is used in *MT.*, †, for eyes, *AM.* 8, 6, 6 (without det.); and int. (^{*šam*}*sahlânu*) alone in strong wine to be [drunk] (long diagnosis, stomach, etc.), etc., *Kü.* iii, i, 34. Obviously *sahlânu* bears the same relation to

¹ Note that the relative *ša* is omitted after an indefinite plural: *ina ūme teppašu* (see *GE.* 73).

² [Sic], re-examined. *Mat.* has ^{*šam*}*NA-MA* (!), . . . Deimel is incorrect in *D.* 332, 109 (a) in making ZAG-*ĥi*-LI-ŠAR as "*uršu*, e. Gewürz-Mörser". Yet he has also seen that it is *saĥ-lu*, ib., (b) but has read "*ḫitnâ*" (!) on the next page for ZAG-*ĥi*-LI-A.

sahlê as *šamšimranu* to *šamšimru* ("like *šamšimrum*"), and *šamazupiranu* to *šamazupiru*. Moreover *šamkudimeru* is so similar in sound to *κάρδαμον* that the obvious suggestion is that it was taken over by the Greeks.

Since *sahlê* is the cultivated variety (inasmuch as it is constantly mentioned in rations with grain), the *sahlânu* may perhaps be the wild kind (more powerful, as Pliny says, p. 56).

FP.² i, 105 gives the Arabic as *rašād* (found in fields, probably having escaped from cultivation). This last may perhaps explain the Assyrian omen "When in a field ZAG-YI-LI-Š[AR] *i-pu-uš*, the crops will flourish, etc." (Gadd, CT. xxxix, 4, 40).

Sahlê occurs thus in MT.:

(1) *Simply*: ext.: *Eyes*, †, bind on, AM. 8, 1, 14 (5 shekels): †, apply, *ib.* 17; †, bind on, AM. 8, 5, 7: after an application of other drugs, bind on alone in beer-yeast, AM. 12, 8, 8: with flour of roast corn and others (?), apply dry to head, AM. 16, 1, 6: †, in a *labku* for eyes, AM. 19, 6, 5: †, as ointment, *ib.* 7: sim., †, *ib.* 12, and prob. 15. *Mouth* (apparently), † (among which are roses, *Ammi*, pine- and fir-turpentine), bray in equal proportions, mix in water, dry in the sun, again pound, boil in oil in a small copper pan, pound, again pound in fat, rub in sweet oil, bind all his limbs as a poultice, AM. 29, 5, 5: KA-DIB-BI-DA (obviously unpleasant breath), †, AM. 23, 2, 11 (cleanse mouth): AM. 78, 1, 13, 15, 17, 29, 30 (cleanse mouth): for yellow *saliva*, †, AM. 31, 6, 7. *Teeth*, †, AM. 21, 1, 15. *Ears*, †, in oil on wool, AM. 33, 1, 24: uncertain use, AM. 34, 1, 37. *Temples*, †, bind on, AM. 20, 1, 19, 20, 37. *Head* (dryness of), $\frac{1}{3}$ *qa sahlê* with $\frac{1}{3}$ *qa* of flour of roast corn in rose-water, bind on, after shaving head, CT. xxiii, 23, 5, dup. KAR. 202, 9, cf. 6 and 27, 14 + AM. 41, 3, 2: with *bututta* in rose-water, KAR. 202, ii, 38 (cf. CT. xxiii, 31, 65): with pine- and fir-turpentine in rose-water, KAR. 202, ii, 39 (cf. CT. *ib.*). *Nails falling out* (?), *lu na-da-at* . . .), † (*sahlê BIL-ti*), AM. 100, 3, r. 10. *Feet*, muscle, *šagguma*, so that he cannot walk, †, bind on, AM. 68, 1, r. 9: *feet holding fire*, unable to bear weight of patient, † (uncertain use), AM. 69, 7, 9: sickness coming out in *feet*, (leg) or *šir*, and itching, steep with roses and GÜ-DU₁₃ (fenu-greek) in rose-water, bind on, AM. 74, 1, 33: swollen *feet*, bray with plaster of paris, *Salicornia*-alkali, and dung, steep in milk in a small copper pan, bind on while hot as a poultice, AM. 73, 1, 16. *Anus-trouble*, †, AM. 42, 2, 7 (dup. 57, 3, r. 7): 53, 9, 7. *Breast*, etc., †, uncertain use, AM. 49, 4, 4. *Loins*, †, poultice, AM. 27, 1, 13. *Stomach*, $\frac{1}{2}$ *qa*, †, poultice, Kü. ii, i, 15. Some *skin-trouble*, †, apply to the spot, AM. 44, 1, ii, 6. "Poison," †, as poultice, AM. 98, 3, 9. *Cough*, †, uncertain use, AM. 50, 3, 7.

Int.: *Head*, †, drink in beer, AM. 1, 3, 12. Probably *fætor* (mouth and nose), †, 1 grain, in oil and beer drink, AM. 26, 6, 12. Probably *stomachic*, but including teeth, etc. (see PRSM. 1926, 65) with *Ammi*, drink in beer, AM. 36, 2, 12. *Stomachic* (*sirihti libbi*), †, in beer drink, AM. 39, 1, 43 (*sah-lu-u*) (cf. Kü. ii, i, 23). *Cough*, †, with pounded roses, drink in oil and honey, AM. 80, 1, 5 (. . . 𒂍-LI *te-ne-tim*). Uncertain, drink in *kurunnu*-beer, AM. 81, 1, 4: †, in *kurunnu*-beer drink, AM. 83, 1, r. 20. For stopping *aši* (as appetizer (?)), †, drink in oil and *kurunnu*-beer, AM. 16, 4, 4, dup. 64, 1, 35.

Quantities: (in addition to those given above): 7 grains, Scheil, *RA.* 1917, 178, 20: 5 shekels, *CT.* xxiii, 23, 11 (*dup. KAR.* 202, 17: 10 shekels, *CT.* xxiii, 23, 10 (*dup. KAR.* 202, 15): 33, 11.

(2) "Water of *sahlê*," *AM.* 11, 2, 29 (gloss to "copper dust", †, for eyes).

(3) Flour *sa-a[h-li-e ?]*, with other kinds of flour, for bruise (*dikši*) poultice, *AM.* 96, 1, 8 ff.

The adjectives applied to it in *MT.* are:

(a) *BIL-ti*, see above, p. 59: *BÍL-tim* (= *eššetim* "fresh"), *AM.* 83, 1, r. 20.

(b) *Qalute* "roast", †, in poultice, *AM.* 78, 9, 2: 81, 2, 8: (uncertain use), *AM.* 98, 2, 8: *galati* "roast", †, in poultice, *AM.* 31, 2, r. 6: *galâti balâtati* ("roast, alive"), †, for eyes, *AM.* 15, 6, 10.

(c) *Teniti* "ground", *CT.* xxiii, 23, 6: *AM.* 64, 1, 16: 79, 5, 4 (all *ĦAR-tim*): *AM.* 39, 1, 28: 82, 2, 15: *teneti*, †, in poultice, *AM.* 98, 3, 19: *tenetim*, *AM.* 80, 1, 5.

(d) *Sikite* "powdered", *AM.* 81, 1, 4: *sikâti*, *AM.* 39, 1, 33: *sikati*, *KAR.* 202, ii, 32 (†, bind on head).

(e) *Pašate* "pounded", *AM.* 80, 7, 3: *pa-ḥa(l)-ti*, in beer drink for *ašû*, *KAR.* 202, 42.

(f) *Kišâti*, *AM.* 11, 2, 26.

(g) *Tubbâti*, along with bread in an offering, *BBR.* No. 1-20, 34. See p. 55, *šamtuptê*, *šamtubbae* (or *šamtuptê*).

The use of *Lepidium sativum* L. medicinally in India is very common. The seeds are used in mucilage, powder, and paste, being alterative, tonic, aphrodisiac, stimulant, and aperient; a cold infusion with mucilage is used to check hiccough; as an alterative for enlargement of the liver and spleen. Bruised, they are mixed with lime-juice and spread on linen ext. for internal inflammations and rheumatic pains. *Saccharum officinarum* with clarified butter and seeds of *Lepidium* are used as a restorative by native women (*BMM.* 152 ff.). In the Punjab the plant is used for asthma, cough with expectoration, and bleeding piles, while the root is used in secondary syphilis and tenesmus; and the seeds, boiled with milk, are thought to cause abortion. Ext. in general the seeds are of great service in all the diseases for which mustard is used, and are also used in dysentery and diarrhoea (*IMP.* 96 ff.). According to Sanskrit writers the seeds are tonic and alterative, efficacious in hiccough, diarrhoea, and skin diseases. Mahomedan writers consider that they have aphrodisiac and diuretic qualities, and recommend them for spleen. According to Bellew the seeds are considered in the Punjab to be galactagogue (*IMP. ib.*). Pliny (*NH.* xx, 50) says that the nasturtium (*L. sativum* L.) is antaphrodisiac: there are two kinds, one a purgative, used also as a liniment with bean-meal for scrofulous sores, while the other, darker than the first, carries off vicious humours of the head, and sharpens the sight: in vinegar it calms the troubled spirits, and drunk with wine it is used for spleen, or in honey for a cough. The seed is good for asthma or cough, and a decoction in goats' milk is used for pains in the chest; as a liniment in vinegar it removes spots from the body. The smell of burnt nasturtium drives away serpents, and neutralizes the venom of scorpions, and gives relief in headache, and applied to the head

with mustard it is a remedy for alopecia, and with a fig is applied to the ears for hardness of hearing. The juice, if injected into the ears, cures toothache and with goose-grease is a remedy for porrigo and sores in the head. It is employed for lichens and malformed nails.

"Als Gewürz verwendet, wie die Gartenkresse (L. Sat.), die Brunnenkresse (Nasturtium off.) und die Bitterkresse (Cardamine amara) (KERNER 2, 677). Sie dient zu feinen Saucen und war früher officinell (OKEN 1392). Sie muss früher viel mehr gebaut worden sein als jetzt, wo sie allmählich in Vergessenheit gerät" (FISCHER-BENZON 103) (FJ. i, 505).

On the preparation of *L. sativum* see *ibid.* 508.

E. 1. ^{šam}PI-PI, *šimru*, *Foeniculum capillaceum* Gilib., Fennel.

2. ^{šam}Šamrānu (probably) *Pimpinella anisum* L., anise.

Pl. 19, K. 4216 + 4360 + 4586 :

^{šam} š i m - r u ¹	^{šam} PI-PI
^{šam} SU-NU-UŠ	^{šam} PI-PI
^{šam} šá-mi ha-hi ^{xl}	^{šam} PI-PI ina māt Akkadiki
^{šam} HA	^{šam} ra-nu
^{šam} HA : šim-ra-nu	tam-šil ^{šam} ši-im-rum
^{šam} HA : ^{šam} HA bi.a	^{šam} šim-rum
^{šam} HA	^{šam} šim-rum
^{šam} pa-ri-e	^{šam} HA šá šad(i)
.. -la-a-nu-um ²	^{šam} šam-ra-nu
..... egli	išid ^{šam} šam ₄ -ra-ni
.....	išid ^{šam} šam ₄ -ra-ni
.....	šam-ra-nu
.....	[šam]-ra-nu
.....	[šam]-ra-[nu]
.....

The text given by Langdon, *RA.* 1916, 31, 3 gives :

^{šam}ra-a-nu = ^{šam}a-ra-an-tú = ^{šam}a-la-mu-u,

paralleled by *Mat.* 86, 7-8, 3 :

^{šam}šam₄ (= HU-SI)-ra-nu = a-ra-an-tú =

The various forms of the drugs in this list occur in *MT.* thus :

(a) ^{šam}Šimru: simply: Sorcery, uncertain, *AM.* 85, 1, g. Root, ^{šam}šu-ru-uš ^{šam}šimri ... , ears, *AM.* 34, 1, 32.

(b) (^{šam})Šamra(n)nu: (1) Simply: Lassitude (rimutu, *JRAS.* 1929, 819), †, bind on, *AM.* 52, 5, 15. Poultice for "poison", bind on, *AM.* 98, 3, 8. Feet, bathe, †, *AM.* 69, 2, 8. Swelling, †, apply, *AM.* 75, 1, iv, 10 (+ 18, 5). Ghost, †, anoint in cedar-blood, *KAR.* 56, 5. Sorcery, †, drink, *AM.* 89, 1, 7.

(2) Seed: Feet, with *Ricinus*, bray, apply, *AM.* 74, 1, iii, 2. Hand of Ghost, †, drink in beer, *AM.* 76, 1, 25, Langdon, *PBE.* xxxi, 67, 8.

(3) PA (tops): Feet, †, *AM.* 74, 1, iii, 12. Breast, †, bind on, *AM.* 83, 1, r. 26 + 51, 9, 4.

¹ Meissner, *SAI.* 5963, has slipped in reading this (^{šam}) ur-nu (?), and Deimel (383, 48) has not improved on it with ^{šam}ur-ru. Šim is clear.

² [Sic], re-examined.

(c) *šam*_{PI-PI}: (1) *Simply: Temples*, †, bind on, *CT.* xxiii, 45, 24 : 46, 30. *Pleurisy* (uncertain part of plant), *AM.* 87, 6, 5 (*dup.* 1, 6, 3 ff.). A drug for *šá-šá-ti* (ulcer, or similar),¹ like *stakte*, *p.* 340, *KAR.* 203, *r.* iv, 23 : *cf.* (?) *Pl.* 36, 81-2-4, 267, 10. For *aši* (appetite), *KAR.* 203, iv, 1, *cf.* *Pl.* 29, K. 4566, 23. Notice also the vocabulary, *p.* 61, l. 3, for cough.

(2) *PA* (tops): *Itch*, on head, †, *ext.*, *AM.* 5, 5, 13.

(d) *šam*_{HA}: (1) *Simply: ext.: Eyes*, †, *AM.* 13, 4, 2 (?). *Head* (?), †, bathe, *AM.* 6, 5, 5 (?). [*Breast and loins*], †, bathe, *AM.* 49, 1, iii, 8. *Itch* (*guraštu*), †, *AM.* 17, 1, ii, 1, 5. Threaded on wool to hang on neck, †, *AM.* 28, 7, 5 (*PRSM.* 1926, 70).

Int.: Lungs (*ḪAR^{nt}*), †, drink in beer or wine, *AM.* 48, 4, *r.* 10. *Urinary* (uncertain), drink, *AM.* 66, 7, 14 (*Bab.* 1934, 110).

Fumigate: Ears, †, including sulphur, *AM.* 33, 1, 35.

(2) *Seed: [Head]*, alone in oil, *ext.*, *AM.* 64, 1, 19 (*RA.* 1929, 69).

Fumigate: Hand of Ghost, †, including sulphur, *AM.* 99, 3, *r.* 8.

(3) *Root: ext.: Ghost*, †, bind (*Aš-su*), *AM.* 93, 1, 51, *dup.* 70, 2, 22 : anoint, *AM.* 97, 4, 12.

Int.: Strangury, †, *AM.* 59, 1, 38 (?).

Fumigate: "Poison" of all limbs, †, *AM.* 91, 1, 8.

With this Langdon (*BEA.* xxxi, 72) rightly compared the Aram. *šammārā* "fennel": the root *šammar* "made to flow" indicates the "tear-like drops" of *NH.* xx, 95. The main difficulty in this group is to distinguish between *šamšimru* and *šamšamrānu* (*šamšimrānu*), and the solution lies in the similarity of fennel (*Anethum feniculum* L., *F. capilla-ceum* Gilib) with anise (*Pimpinella anisum* L.) ("these fruits and the Anise have been confounded together", *BMM.* 346 : *cf.* *MI.* 129). The following are the points of difference between the two:—

Fennel: wild in A. Minor, Persia, and India (*Bentley, Organ. Mat. Medica*, 172), esp. common in the Mediterranean region. In Medicine as aromatic, stimulant, and carminative, rarely in substance, more commonly as distilled water (for flatulence), and volatile oil, the roots being formerly used (*BMP.* No. 123); in India, used as confection, paste, infusion, distilled water, and tea, promoting urine and perspiration, and being used for colic and amenorrhœa (*BMM.* 345). The leaves are good for diseases of the eyes, and increase milk (*HD.* 7) (*Culpeper, Eng. Phys.* 1814, gives numerous uses for leaves, seed, and root). *Pliny* (*NH.* xx, 95) says that the plant is good for eyes, the juice destroys small worms in the ears, the seed is used in wine for stings of scorpions and snakes, and for the lungs, liver, stomach, and to increase urine, the root is used for dropsy and convulsions, and the leaves applied to tumours: he includes a wild variety of fennel ("hippomarathron"), more efficacious in medicine than the above (for calculi, menses, and against serpents).

Anise: a native of Egypt, Crete, and Cyprus (*BMP.* No. 122) (*FP.*² i, 518). (Called *šammārā rômâyā*, *FJ.*² iii, 468, although in English the "Roman fennel" is the sweet variety, *Bentley, Org. Mat. Med.* 173.) Carminative and stimulant, the oil being used (*BMP.* 1, c); in India used as having a special influence on the bronchial tubes, and locally

¹ *RA.* 1929, 53.

for headaches, and applied to the abdomen for flatus (*BMM.* 329). "The seed is only used in Physick," the oil provoking urine, and of use against coughs; it takes away pains and noises in the ears, and outwardly the stomach and navel may be anointed therewith (*HD.* 8). Pliny says (*NH.* xx, 73) that it is good for the eyes, ears, cough, the stings of scorpions, as a carminative, for sleep, against calculi, vomiting, affections of the chest, *etc.*, and as a liniment for phrenitis, and for infants attacked with epilepsy; Pythagoras said that those who hold it will never be subject to such fits. The root is used for kidneys; Sosimenes prescribed it for lassitude in oil and nitre. *NH.* also recommends it for headache, either in fumigation or as a decoction in oil.

Obviously our evidence for the distinction of our Assyrian words as "fennel" or "anise" is slight. *šamšimru*, *šamPI-PI*, and *šamHA* are all given as equivalents to each other: *šamHA* is the only one of these equivalent to *šamšimrānu* and *šamšamrānu*, of which the former is said to be like *šamšimrum*. In *MT.* we find:

- (a) *šamšimru*, used simply only.
- (b) *šamPI-PI*, used simply, and the PA (tops) used also.
- (c) *šamHA*, simply, and the PA (tops), seed and root used.
- (d) *šamšamrānu*, simply, and the PA (tops) and root used.

Our evidence for the different, more modern uses of fennel and anise shows that we have:

- (a) From *fennel*, distilled water, oil, seed, root, leaves, and juice.
- (b) From *anise*, the oil, seed, and root.

It is therefore difficult to draw any very definite inference from such evidence as this about the exact distinction between *šamšimru*, *šamšamrānu*, and *šamšimrānu*.

But the hemerologies do offer us a little better indication. Here it is laid down that *šimru* (always written out *šim-ra*, an important point) and cress should not be eaten on the second or fifth day of Elul (*KAR.* 147, 10, and 25; 177, r. 3, 18, and 42). Now this must surely refer to those seeds which are so constantly mixed in the bread in Mesopotamia, and consequently they will be the seeds represented by the modern *uznāj* "fennel" (which I bought in the Mosul bazaar, Dr. A. B. Rendle, F.R.S., kindly identifying it for me as *F. capillaceum* Gilib), it being used with the sweet-smelling cherry-stones (*Prunus mahaleb* L.) and *Rocella*, pounded and mixed with dough. I have no knowledge of the anise being so used in Mesopotamia, although it must be noted that anise is certainly used in some northern countries either in making the bread or sprinkling on the surface of it (*LPG.* 38), and Pliny actually speaks of both fennel and anise in bread (*NH.* xx, 72, 96). Ainsworth mentions two species of fennel in June at Umrah in the Tiyari country, the inhabitants chopping up the fennel when green and putting it into sour milk (*Travels*, ii, 228). I suggest, therefore, that though our indications are not too well marked, we may see in the simpler form, *šamšimru*, which heads the list, the fennel, rather than the anise, which we may refer to *šamšamranu* (*šimrānu*).

šamPI-PI, the Sumerian for *šamšimru* (*i.e.* fennel), has another equivalence (as *šamPI-PI*) of *k[anaktu]*, which, if it be an umbellifer, as *šamPI-PI* suggests, and not frankincense, will be *Opopanax* (p. 346).

Another equivalence is *šamar[antu]*, Pl. 35, K. 271, 14.¹

Pl. 29, K. 4566, 23, and KAR. 203, iv, 1, give *šamPI-PI* as one of the *šam ašî* (appetizers), and Pliny (*NH.* xx, 72) gives anise (*Pimpinella anisum* L.) as having this effect, which, it must be noted, he does not definitely say of fennel.

šamParê as = *šamHA šá šadi(i)* "fennel of the mountains" will then be hippomarathron, Pliny's wild variety of fennel, the *šammárâ dhê tûrá*, *FJ.* iii, 464, which might be the *F. piperitum* D.C., which grows in the dry hills (*FP.*² i, 545).

F. 1. *šamSULLIM-ŠAR, šambalitu, Trigonella Fœnum-Græcum*, fennel-greek.

2. *Kusibirru ŠAR, Coriandrum sativum* L., coriander.

3. *šamSULLIM-GUB-BA-ŠAR, ussuhtu*, "smut" (mildew).

4. *šamSULLIM-SUR-RA-ŠAR, šahittu*, "rust" or "stinking smut".

5. *šamSULLIM-GIS-MI-ŠAR, šillanitu*, "smut."

6. *šamSULLIM-ĦAR-SAG-ŠAR, azupiranitu, Puccinia graminis*, "rust."

(A) Pl. 18, K. 4354, i-ii, 27-28, gives the beginning of the section, dup. of Pl. 21, K. 267, iv, 10-12, continued by rev., vi-v, 1-10. K. 8667, CT. xix, 50, 2-5, is a duplicate.

Pl. 18, i-ii: Pl. 21, iv.

	[šamSULLIM]-ŠAR ²	šamšá-am-[ba]-lil-tú
	[šamNUMUN-SULLIM]-ŠAR	šam[zi]r šam „
	.....	šam „ „
Pl. 21, vi-v:		
	šamMUĦ-AŠ-AŠ	šame-ri-iš-tum
	šamNAM-TAB-BA-ŠAR	šam „
	šamSULLIM-ŠAR	šam „
	[šamš]á-am-ba-lil-tú	šamla-di-ru
5.	šame-riš-ti kasî ŠAR	šamla-di-ru
	šamtul-di	šam „ ina Šú-ba-ri
	šamSULLIM ³ -GUB-BA-ŠAR	us-su-uh-tú
	šamSULLIM ³ -SUR-RA-ŠAR	ša ⁴ -hi-it-tú
	šamSULLIM ³ -GIŠ-MI-ŠAR	šil ⁵ -la-ni-tú ⁶
10.	šamSULLIM ³ -ĦAR-SAG-ŠAR	a-zu-pi-ra-ni-tú ⁷

¹ Whether PI-PI has anything to do with "smell" (*φν, phu*), as I thought in *AH.* 52, is uncertain; it is possible that *šamHA*, as the "fishy plant", may have some connection, and perhaps the *šamPI-PI-ŠAL-LA* ("PI-PI of the uterus"). Other compounds with PI-PI are *šamUR-PI-PI*, *šamAŠ-PI-PI*, *šamPI-PI-nu* (= *uzna-nu*?) *ša šadi*, *šamPI-PI-NU-NU* (*nu-nu*?), *šamPI-PI-TAK* (*pi-šum*?). It is by no means certain that we are to restore *šamPI-PI* in Pl. 41, K. 8829, 7, for *šamlipe-rišti*, and in Pl. 30, 79-7-8, 19, 15, for *šamNE-A* (see pp. 198f.).

² From CT. xi, 45, i-iv, 4, *su-ul-lim* | *šamSULLIM-ŠAR* | *šam* . . . , (i.e. *ni-si-gu-u*) | *šam-ba-lil-tum*. On *šamsuleim* = *dišu*, see p. 147.

³ Var. *še-lú*, K. 8791; this text has only one line in this group before these four words following, i.e. *šamše-lú-ŠAR* | *ki-si-bir-ru*. I fear that I cannot understand Deimel (No. 367, 168) "Zwiebelart" for *še-lú*.

⁴ K. 8667 and K. 8791, *ši*.

⁵ K. 8791, *ši*.

⁶ K. 8667 apparently omits this line.

⁷ K. 8791 gives the additional equivalence after this: *šamĦAR-SAG-ŠAR* | *a-zu-p[i-ra-nu]*.

(B) *Pl.* 46, *Rm.* ii, 203, *obv.* 2 *ff.* :

<i>šam</i> šá-mu ba-[lil]-tú	<i>šam</i>
<i>šam</i> tul-tú	<i>šam</i>
<i>šam</i> ER ₄ -TI-LA	<i>šam</i>

(C) *Mat.* 86, 7-9, 27 :

*šam*SULLIM-ŠAR | *šam*-ba-lil-tú | la-di-ru

*šam*SULLIM-ŠAR occurs in *MT.* as one of sixteen drugs, uncertain, *AM.* 98, 2, 10.

1. *šam*Šambalitu was rightly identified by Meissner (*MVAG.* 1904, 3, 27, 39) as the Aram. *šebhlilā*, Syr. *p^{el}iltā*, fenugreek.¹ Fenugreek, *Trigonella Fœnum-Græcum* L., "is a native of the south of Europe. Dr. Sibthorp found it in abundance on the shores of Asia Minor" (*PC.* xxv, 212). Ainsworth saw it in Mesopotamia (*A.* 36), where it was called "hulby" (*hulbah*, *FP.*² i, 312). Pomet (*HD.* 11) says that its pods resemble a bull's horn, and that as a drug it is of greater use ext. than int. It expels wind, but is disagreeable: it is emollient and anodyne, in use in emollient clysters. "In some parts of the south of Germany this plant is extensively cultivated as fodder for horses and sheep" (*PC. ib.*), which suggests a reason for its inclusion in *MB.* alongside lucerne. In this connection in *MB.* *šam*-ba-lil-ti ŠAR occurs in the same group as *aspasti* ŠAR (= Syr. *ʾaspastā*, lucerne, Meissner, *ZA.* 1891, 296), *nigdu* ŠAR (possibly the Arab. *nugd*, *Reichardia tingitana* L., *FP.*² ii, 151), *šurbi* ŠAR (*Asa foetida*, p. 352, *qiššu* ŠAR (cucumber, p. 81), and *piqquti* ŠAR (Heb. *paqqū'ōth*, Meissner *ib.* 297). The value "fenugreek" is curiously confirmed by the equivalence in Šubari of *šamtuldu* (*šamtultu*) which must be the Aram. *tiltān* "fenugreek", probably the Phœnician *τῑτλῶ* (cf. *FJ.* ii, 475) (not the same as *šam* tul-te, *Pl.* 23, K. 259, 7, i.e. "a drug for the worm" in teeth, p. 303). As was mentioned above, fenugreek is a good forage (*FF.* 96), which may perhaps allow us to refer *šam* baliti to the Heb. *b^{el}il* fodder.

*šam*MUH-AŠ-AŠ, *erīstum*, i.e. "(strong) smell", comparable to *šam*MUH-AŠ-AŠ-ŠAR . . . (p. 73), presumably *Lactuca virosa* L., a strong-smelling plant (which is evidence again here for fenugreek), this lettuce being "of a disagreeable smell" (said to be like opium, Gerarde, ed. 1633, 309), especially the seeds (*VK.* 534, although *FP.*² i, 312, describes them as sweet-smelling, and added to give a savour to hay which has become musty. It should be added that *CT.* xii, 34, i, 45, discussing *erīšu* "smell", gives *šam*MUH-AŠ = *e-riš-tu šam-mu* "smell + plant": moreover, one of the synonyms for "fenugreek", *šamladīru*, is given an equivalence *šame-riš-ti kašī* ŠAR, i.e. "scent of the rose" (p. 64). Whether the scent of fenugreek can be compared to that of the rose depends on the fancy of the seeker.

*šam*Ladīru is a synonym for *šam*šambalitu, and *šamerišti kašī* ŠAR, its seed being used in *MT.* once in enema, †, *KAR.* 187, r. 7 (i.e. *zir šam*la-di-r[i]). *šam*Erišti kašī ŠAR is used also once in *MT.* (p. 198) for the

¹ Whether these two are the same is discussed in *FJ.* ii, 478.

head. The former prescription is comparable to the use of fenugreek in clysters (VK. 534), the latter to Pliny's (NH. xxiv, 120) prescription for ringworm and dandruff. ^{Sam}*Eri-šat eqli* occurs KAR. 203, iv, 2 (for *aši*, appetite), but I cannot help thinking that this is a mistake for ^{Sam}*si-mat eqli*, cummin (p. 76).

^{Sam}NAM-TAB-BA-ŠAR suggest a doubling of some obvious part of the plant, but what is not clear.

2. Finally as a parallel in this group we have the *kisibirru* (*kusibirri* ŠAR in MB. 33) compared by Meissner, ZA. 1891, 294, to the Aram. *kusbartha* "coriander", *Coriandrum sativum* L., which I have bought in the Mosul bazaar under the name of *fazbū'ah*, it being prescribed in tea for stomach-ache. Pomet (HD. 9) says it helps digestion, makes breath sweet, and closes the mouth of the stomach. It does not appear to occur in MT.

3-6. The next group in this register ((A) vi, 7-10) stands out curiously. All the words begin with SULLIM or ŠE-LŪ, and end with ŠAR: all the Assyrian words are feminine and two end with the termination -*anitu* (both of these referring to colour, black and saffron). There is no reason that we are obliged necessarily to consider them as plant names, except that they follow at the end of the *šambahiltu* group. The initial sign SULLIM, which, besides being used in groups to give the meaning "tares" (p. 146), "fenugreek", and "coriander", is properly the word for "harvest" (*eburu*, *šibirru*), and this, with the two words for "black" and "saffron", suggest that we have here words for "blight" or "mildew" in corn. Here is the evidence:—

There are at least three kinds of disease in corn (fungus, blight), these being to some extent represented in Hebrew by *yêrâqôn* (root *yâraq*, Assyr. *arâqu*, "be green" or "yellow"), and *šiddâphôn* from *šâdaph* "to scorch, blight". The modern English for them is "rust", "smut", and "bunt":

(a) "Rust," *Puccinia graminis*, a fungus which makes its appearance in orange-red spots or streaks on the stalks and leaves. This must be the *yêrâqôn*, ὤχρα, *rubigo*, in Arabic *araqân*, a blight or disease on seed-produce, with the meaning of jaundice in men. The result is a brown or reddish dust similar to iron-rust (EB. xith ed., s.v. "Wheat"). Clearly, from the reddish dust we have here, our Assyrian word *azupirânitu* the "saffron-thing in harvest", from *azupirânu*, the crocus (which latter has a brown dust given off from the stigmas).

(b) "Smut," *Ustilago Tritici*, a mass of dark-coloured spores, "burnt ear," like charcoal, without smell (EB. ib.). This must be our *šillânitu*, "the black-thing in harvest," which has no hint of smell in it.

(c) "Bunt," *Tilletia Tritici*, "stinking smut," a black powder with the smell of "stale herrings" (EB. ib.). Here we probably have *šahiltu* (*šihiltu*) (the meaning in Sumerian is uncertain), probably connected with *šuhtu*, the Syr. *šuhtâ* "verdigris". That this suggests "rust" is obvious, but there may also be the idea of the disagreeable smell produced by rubbing copper, but whether this can be compared with the smell of

"stale herrings" I cannot say. We can, however, see in it either the "rust" of (a) or the "stinking smut" of (c).

The fourth word, *uššuhtu*, may be cognate to the Arabic *wasīḥa* "be dirty", and so connected with "smut".

- G. 1. ^{šam}KUR-RA, ^{šam}šami išŠAR, ^{šam}ninû, *Ammi Visnaga* (L.) Lam., or similar, perhaps, *A. majus* L., "Bishop's Weed."
 2. ^{mašak}Hullatum šAR, *Ammi Visnaga* (L.) Lam. Bishop's Weed.
 3. ^{šam}Alamû, perhaps *Anchusa*.

1. Pl. 20, K. 4216 + 4360, r. 32 ff.:

[^{šam}]šá-mi GIŠ-ŠAR	^{šam} ni-nu-u
[^{šam}]šá-mi hi-in-ti	^{šam} ni-nu-u
[^{šam} KUR-R]A-ŠAR	^{šam} ni-nu-u
.....	^{šam} ni-nu-u
.....	^{šam} ni-nu-ú
.....	^{šam} ni-nu-ú

In *MB.* this plant occurs as *ni-nu-ú* šAR in the same sector as *hi-iš* šAR ("parsley", or *hi-iš* šAR "lettuce"), ^{mašak}Hullatum šAR, and *šimittum* šAR ("beetroot").¹

The difficulty lies in deciding whether *ninû* is the equivalent of the Syr. *nân'â* "mint", or *ninyâ* "Ammi". Kùchler (83), however, agreed with Meissner in making it *Ammi*, and this seems certain, since ^{mašak}Hullatum will be seen on p. 69 to be another word for *Ammi*.

Further evidence lies in the description ^{šam}šami *hinti*, which latter word may be compared to the Syr. *hint'athâ*, *unguentum*, *condimentum* (balm), *μῑγμα* (*Brock.* 117), the Greek word meaning a compound, esp. of made dishes, medicines, etc. Pliny (*NH.* xx, 58) says of the *Ammi* that "it is employed for just the same purposes as cummin, for we find it used at Alexandria for putting under loaves of bread, and forming an ingredient in various sauces". This gives us a new Assyrian root *hanâtu*, equivalent to the Heb. *hânaf* "make spicy".

With all evidence thus pointing to ^{šam}ninû as *Ammi*, we can examine its occurrences in *MT.* The use of *Ammi* actually is so similar to that of mint that the coincidences in use need not affect the relative identifications:

(1) *Simply: ext.: Eyes*, apply, †, *AM.* 9, 1, 13: 19, 2, 6 (in oil): 10, 4, 5: 19, 6, 5: *ib.* 7 (boiled and brayed with oil and white (?) (or dry (?) wax): *ib.* 10 (roasted and brayed in fat, wax, and *himetu*-ghee). *Itching feet*, with ^{šam}kazalla, bray, apply locally, *AM.* 74, iii, 3. *Tooth* (or *mouth*), apply, †, *AM.* 36, 2, 3 (for KA-DIB-BI-DA, mouth-trouble), †, cleanse mouth (presumably in all cases), *AM.* 78, 1, 15, 19, 25, 30: possibly when saliva comes when speaking, bind on "all his limbs" as poultice, *AM.* 29, 5, 5: when teeth (KA²¹) deposit yellow, etc., †, cleanse mouth and nostrils, *AM.* 31, 6, 7. Apply to nose, †, *AM.* 26, 1, 3. For woman sick of .-al-lu-tu, put on wool and insert in womb, † (?),

¹ I think that *šibittu* šAR (the Syr. *šebhetâ Anethum graveolens* L.) of *MB.* 23 (Meissner, *Z.A.* 1891, 293) is less preferable than *šimittu* šAR, beetroot.

KAR. 196, iv, 17. *Anus-trouble* (?), apply (?) to anus, †, *KAR.* 191, iii, 10. *Ghost*, anoint, †, in cedar oil, *AM.* 96, 4, 3. Uncertain disease, †, bray, bind on in *kirrani*(?)-oil, *AM.* 30, 2, 3 : alone, bray, anoint in oil, *KAR.* 203, i, 46.

Int. : *Fætor* in mouth, apparently with *Lepidium* (drink), *AM.* 36, 2, 12 (*PRSM.* 1926, 65). *Bile*, alone, drink with fresh water, *Kü.* iii, ii, 14. For *easy accouchement*, with ^{šam}lišan kalbi (*Cynoglossum* or *Plantago*), *AM.* 67, 1, iv, 15 : some *uterine* trouble (menses ?), †, drink, *KAR.* 194, iv, 1. *Stomach*, alone in beer, *AM.* 48, 1, 9 (*RA.* 1929, 79) : alone (and *iarrum*, he shall vomit), *Kü.* ii, iii, 12. *Virility charm*, †, drink, *Liebesz.* 49, 23, and 28. *Sorcery*, with 31 others, drink, *AM.* 89, 1, 8.

Enema : †, *AM.* 56, 1, 6 : 57, 5, i, 4 (5 shekels) : 94, 2, ii, 4. *Stomachic*, †, apply *ext.*, and as enema, *KAR.* 157, 3 : *allan* (suppository), †, *AM.* 43, 1, 3, 7 : 57, 5, r. 6 : for diagnosis including involuntary diarrhœa, †, *KAR.* 157, r. 32.

Fumigation : †, *AM.* 10, 2, *dup.* of 99, 3, 14 (for ghostly seizure) probably 19 : †, 93, 1, 11 (for ghostly seizure) : †, in old ox-fat, 103, 20 (for ghostly seizure) : for *ears*, *AM.* 33, 1, 34.

Quantities : 10 shekels, *AM.* 57, 7, ii, 6 : 5 shekels, *AM.* 57, 5, r. 4 : 64, 1, 8.

(2) *zid* (powder) ($\frac{1}{2}$ (?) *qa*), *AM.* 77, 2, 8.

(3) *Leaf* ("while it is yet green"), for *anus-trouble*, alone, in strong vinegar and *dapramu*(p. 279)-oil, *KAR.* 203, iv, 9, *dup. Pl.* 30, S. 698, 16. "Yellow" or "green", drink in beer, †, and anoint, *AM.* 88, 12, r. 8. Apply *head*, †, *KAR.* 202, i, 45.

The uses in India¹ of "Bishop's Weed" are given in *BMM.* 326 as powder, decoction, infusion, and tea; it being considered a fine stimulating and hot carminative and antispasmodic, used for colic and tympanitis, chronic discharges, and to lessen sputum, while a plaster of the crushed fruits is said to relieve pain. The seeds are used hot as a dry fomentation to the chest for asthma, while the oil is used *ext.* for pain. Pomet (*HD.* 3) says that the seed of "Bishop's Weed, or the Ethiopian Cummin", *Ammi*, is the only part in use, it being carminative, cephalic, resisting poison, expelling wind, good against colic and pains in the womb, and provoking menses.

^{šam}Ninû is shown by its name to be "a plant of the garden", and yet Post (*FP.*² i, 525) gives the three kinds of *Ammi*, *A. majus* L., *A. copticum* L., and *A. Visnaga* (L.) Lam., as growing in the fields (the first also in waste places). I found *A. Visnaga* growing near Mosul (kindly identified for me by Dr. A. B. Rendle, F.R.S.), while *A. majus* was seen by Herzfeld (*Beih.* 30) at Qala'ah Sherghat. This fact about its habitat (*i.e.* growing wild) is obviously expressed by ^{šam}KUR-RA "mountain plant", although in contrast to its other name "plant of the garden". Rauwolff, i, 49, mentions *Visnaga* at Tripoli.

It was known in the time of the 3rd Dyn. of Ur (Scheil, *RA.* 1921, 58, 19 (^{šam}KUR-RA), and an OB. letter mentions the sending of ^{šam}ni-in-nam (Kraus, *MVAG.* 1931, *Alt. Briefe* 35). There is a ridiculous pun on its name in *Maqlû* v, 30, *kima* ^{šam}ninû linušu kišpuša "may her sorcery be

¹ Note that *CPI.* 285 says that the *Ammi* of *Diosc.* is *A. Visnaga* L., but not *Carum copticum* Benth, Bishop's Weed, which is called by the name of *ajowan*, etc.

shaken like *ninû* ". In an omen-text, when ^{šam}KUR-RA appears in a city, that city will go to ruin (*iḥarrub*), Gadd, *CT.* xxxviii, 5, 140.

2. This suggestion about the Umbelliferæ allows us to solve the ^{mašak}ḫullatum šAR (hitherto read *suḫullatum* šAR). With this determinative we should find a leather object in *ḫullat*, and obviously our problem is solved by the Arabic *ḫallah*, *hullah* (not only a "sheath", but actually the *Ammi Visnaga* (L.) Lam., the umbelliferous stalk thus not inaptly representing the "sheath" (*FP*² i, 525, 526).

Along with ^{mašak}ḫullatum, the "sheath-plant", *Ammi*, we should consider ^{šam}KUŠ-DAR-KÛ | a drug for ŠÀ-ZI-GA | ^{šam}KUR-RA (*KAR.* 203, r. iv, 34, and *Pl.* 43, S. 60, 14, re-exd.), the probability being that the text means that it = ^{šam}KUR-RA. Here, then, we have the probable Sumerian equivalent for ^{mašak}ḫullatum šAR; the KUŠ may well be the det. ^{mašak}; DAR (having regard to the close connection of DAR and U-DAR, for which see *D.* 113 and 418, and compare the values of *banû* and *sámu* in both) offers a value for DĪŠ-DAR (*i.e.* U-DAR, read UGUN) of *iḫzétum* which may mean "sheath" (cf. the *iḫzu* of *Asb.* ii, 12, a dagger, of gold). If to this we add the value KÛ "to eat", *i.e.* "the eatable-sheath-plant", it will obviously be the same as the ^{mašak}ḫullatum šAR. ŠÀ-ZI-GA, *niš libbi*, is a phrase representing sexual vigour. Pliny (*NH.* xx, 58) says that it is said that if women smell at *Ammi* during sexual congress, the chances of conception are greatly promoted thereby. Are we then to see in *ḫi-iš* šAR (*ḫi-iš-šAR*) not the ordinary "lettuce" (*p.* 73), but perhaps a second word of similar form, to be related to another of the Umbelliferæ, the (doubtful) Syr. *ḫ^ešâ*, probably "parsley" (*FJ.* iii, 426).

3. ^{šam}Alamû occurs rarely in *MT.* The ash is to be brayed and put on wool alone and inserted in the uterus, *KAR.* 194, iv, 23: the simple plant is one of many drugs in a long prescription, *KAR.* 208, 19. The root is mentioned on *Pl.* 37, 81-2-4, 269, 3. The simple plant or drug occurs along with several others including ^{šam}šadanu, ^{šam}šasumtu, ^{šam}lišan kalbi, ^{šam}DIL-BAT, ^{šam}NU-LUḪ-ḪA, and ^{šam}kasî šAR (re-examined and corrected) in *ADD.* 1042, which is presumably a druggist's list. It occurs in the plant-list, *Pl.* 20, Cols. X-IX, 38: (following ^{šam}ninû):

.....	^{šam} a-la-mu-[u]
.....	inbu-šú
.....

The description given above which includes it with *šamrânu* and *arantu* (fennel, and some form of grass) all described as ^{šam}ḪA^{bt-a}, almost suggests that they are included with the Umbelliferæ (*i.e.* "fennel-plants"). The nearest philological comparison is the Syr. *ḫālamthā* (*ḫallāmūth*, *etc.*), which seem to be the slimy plant *Anchusa* (*FJ.*² i, 292), of which many species are given in *FP.*² 224 ff. Note "In einer taanitischen Überlieferung hat sich in einem Satze neben Artischocke, 'aṭad und מלמא der Name einer נשן Kraut oder Strauchart erhalten" (*FJ.* i, 284).

- H. 1. ^{šam}TIN-TIR(-PAR)(-šAR), *kamunu*, *Cuminum Cyminum* L., cummin.
 2. ^{šam}TIN-TIR-GIG(-šAR), *zibû*, *Nigella sativa* L., "black cummin."
 3. ^{šam}Kamun ^{šam}bîni, "lichen of the tamarisk."

1, 2. K. 4586 (*Pl.* 31), joins K. 4216 (*Pl.* 19) :

<i>šam</i> zi-bi-ba-nu	<i>šam</i> zi-bu-u
<i>šam</i> TIN-TIR-[GÍG]	<i>šam</i> zi-bu-u
<i>šam</i> T[IN(?) - TIR(?)]	<i>šam</i> zi-bu-u
[LU]-ÚB šá kima HI-ŠAR ¹	<i>šam</i> zi-bi-ba-nu

K. 8791 (*Pl.* 41) :

<i>šam</i> TIN-TIR	k[a-mu-nu]
<i>šam</i> TIN-TIR-PAR-ŠAR	ka-m[u-nu]
<i>šam</i> TIN-TIR-GÍG-ŠAR	zi-bu-[u]
zi-bu-u ŠAR	Ditto

K. 4174 (*CT.* xi, *Pl.* 45), i, 3 :

ga-mu-un | *šam*TIN-TIR-ŠAR | *šam*-[tin-tir]- „ (= *nisigû*) *ka-mu-nu*
VM. (*Pl.* 42, K. 4140, B, 19 : *Pl.* 44, i, 43) gives :

*šam*ka-mu-nu | ina DU SU-DIN- . .

but *Mat.* 88, i-67.

*šom*mu-u-nu | ina ID šu-din-ni

Note also *šam*si-mat eqli (KAM) as *kamunu*, p. 75 and p. 76.

1-2. *Kamunu* occurs in *MT.* thus :

*šam*TIN-TIR(-ŠAR), *kamunu* (= *šam*TIN-TIR-PAR-ŠAR “white *kamunu*”).

(1) *Simply*: *ext.*: Blister on the foot, anoint with *himetu-ghee*, bray pine- and fir-turpentine and *šam*TIN-TIR together, and apply, *AM.* 74, iii, 18. For *insects*, bray and anoint in oil alone, *KAR.* 203, iv, 20 : cf. No. 108860, *CT.* xxxvii, *pl.* 28, i, 23, 24 :

<i>šam</i> TIN-TIR-ŠAR	<i>šam</i>
<i>šam</i> šá-mi lam-ša-te	<i>šam</i>

i.e. a drug for flies. For *ears* apply, †, on wool, *AM.* 36, 1, 13.

(2) *Seed* : probably *feet* (cf. l. 17 “broken” footsole), after bathing and anointing the place, bind on this seed with seed of *hiš šar* (lettuce) in rose-water, *AM.* 75, 1, iv, 8.

It is used in a charm against a backbiter (*bêl dababi*) with coriander, *Nigella*, and *andaššum* and *ezizu* (*KAR.* 171, *dup.* 178, r. vi, 10). About the beginning of the second millennium 2 *qa* of *ga-mu-ni* was sold for 1½ shekels of silver in Anatolia (Gelb, *Ins. from Alishar* 55, 12).

*šam*TIN-TIR-GÍG(-ŠAR), *zibû*, “black *kamunu*.”

(1) *Simply*: *ext.*: *Eyes*, †, apply, *AM.* 8, 5, 4 : 17, 4, 4 : 19, 6, 15. *Ears*, †, insert, *AM.* 36, 1, 14, 15. *Tooth*, †, apply, *AM.* 36, 2, 3. Probably

¹ Cf. *Pl.* 25, r. 8, LU-ÚB ša kima HI-ŠAR = e-zi-iš-šu.

hair, †, dry, bray [apply], *AM.* 4, 1, 26. Some form of swelling, bruise, or sore, †, apply in cedar-oil, *AM.* 52, 3, 10 : in *himetu*-ghee and cedar-oil, *AM.* 52, 5, 13 : for *lamšat hīlāti* (^{šam}zi-be-e), *AM.* 44, ii, 15.

Int.: Mouth (probably fœtor) drink 1 šē (grain) with 1 šē each of others in oil and beer, *AM.* 26, 6, 12. Some mouth or tooth trouble, alone in beer, *AM.* 36, 2, 13. Stomach, †, *AM.* 16, 4, 4 : (in oil and *kurunnu*-beer), *AM.* 64, 1, 35 : in *kurunnu*-beer drink, † †, *Kū.* ii, ii, 18. Strangury, †, in wine or beer, *AM.* 60, 1, 7.

Fumigate: for *Hand of Ghost*, †, *AM.* 99, 3, 17 (10 shekels).

Suppository: †, *KAR.* 157, r. 32.

In the *VM.* (*Pl.* 42, K. 4140, B, i, 8 : *Pl.* 44, 1, 33 : *Mat.* 88, 1, 58 (*JRAS.* 1934, 776)):

(^{šam})(^{is})zibû | ina zid šē + BAR + šē

“*Nigella* in barley-flour.”

^{šam}*Kamunu*, long recognized as the Heb. *kammôn*, the Syr. *kammûnâ*, *Cuminum cyminum* L. ^{šam}TIN-TIR-GĠG “black cummin”, is, as Kûchler rightly says (*Kū.* 85), *Nigella sativa* L. The two families are distinct, cummin being one of the Umbelliferae, and the *Nigella* (“faux cumin” in French) one of the Ranunculaceae, but they are evidently included in the same register in the Assyrian lists because of the similarity of their seeds.

Cummin, Arab. *kammûn abyad*, Phœn. χαμῶν (*FJ.* iii, 435), was probably native of some part of West Asia, and cultivated from the earliest times in countries bordering on the Mediterranean; the dried ripe fruit is used as mildly stimulant, aromatic, and carminative. The large quantities obtainable are shown by the amount (40,000 Tabriz maunds) exported from Bushire (Pelly, *Trans. Bomb. Geogr. Soc.* xvi, 1860, 46). An *Emplastrum Cumini* was at one time contained in the London Pharmacopœia (*BMP.* No. 134). In India the drug consists of pieces of stems, broken umbels, stalks, complete fruits, etc., and is used as a carminative and stomachic (dyspepsia, diarrhœa); locally a poultice of it allays the irritation of worms in the abdomen (*BMM.* 339). Curiously enough, cummin does not appear to have been popular as an internal remedy in Assyria; its external use in *MT.* is paralleled in Syriac Medicine by the use of cummin for a wound (*SM.* ii, 657), insomnia (*ib.* 659), eyes (*ib.* 660), ears (666), fœtor in mouth (668, to hold in mouth), stomach (677), anus (678), testicles (682), and to kill fleas (689).

Nigella sativa L., Arab. šūniz, šahniz, *kammûn aswad*, *habbat al-saudâ*, *habb al-barakah*, and the Syr. š^hbhâbhûnâ (*FJ.* iii, 115, 122, 123). I bought the seeds of it in the Mosul bazaar, where it was called *habb es-sôdâ*. Ainsworth (*T.* ii, 134) says that *N. Damascena* was in flower at the end of May. The use of TIN-TIR-GĠG-ŠAR in *MT.* is far more popular for internal trouble than cummin; in India the *Nigella* is used medicinally as powder, decoction, paste, and medicated oil; it is an aromatic digestive, stomachic,

¹ There is a ^{šam}UZU-DIR-KUR-RA (= ^{šam}kamun šadî, i.e. “of the mountains”) drunk alone in beer for liver, Scheil, *RA.* 1916, 38, 21, *dup.* *KAR.* 203, i, 33) probably not connected with this *kamunu*.

emmenagogue, lactagogue, anthelmintic (cf. *SM.* ii, 506); given just after delivery to stimulate uterus: applied with sweet oil in skin diseases; brayed in water it removes swellings of the hands and feet. The seeds scattered between woollen shawls are used against insects (*BMM.* 127). In *SM.* it is common. Pomet (*HD.* 22) speaks of a sort of "black cummin" used by the Turks to clean teeth.

The seeds are, of course, black (*BMM.* 126), and are constantly used to sprinkle on bread in the East (cf. Pliny, *NH.* xx, 71, of "gith", black cummin), and Diosc. of μέλανθιον; cf. also *IB.* 1351, quoting *Diosc.* iii, 83, speaking of the black grains mixed with bread. I learnt in Mosul that, as elsewhere, they either put the grains on bread, or they mix fennel, *Prunus mahaleb*, and *Rocella* in the bread. It was obviously also the custom in Assyria (*p.* 57, 63).

The Syr. š^bhābhūnā has the appearance of the Assyrian ^{šam}zibibānu in the same register as the cummin-group, given as equivalent to [LU]-ÚB šá kima HI-ŠAR "beans which are like HI-ŠAR", which is a simile also used of *ezizzu*, a kind of *Lathyrus*. Nevertheless it is possible that ^{šam}zibibānu has been included in this group, not so much on account of its meaning as its similarity to ^{šam}zibū: the description "beans like HI-ŠAR" hardly fits *Nigella*.

3. ^{šam}Kamun ^{ib}bīni occurs in the *VM.* (Meek, *RA.* 1920, 181, i-ii, 5: *Pl.* 44, i-ii, 13: *Mat.* 88, i, 40):

^{šam}ka-mun ^{ib}bīni¹ | ina ^{ab}angab-bi-i (v. e)

(see *JRAS.* 1934, 776).

There would appear to be little doubt that this *kamunu* is different from the *kamunu* meaning "cummin". This other may be either *kamunū* or *kanunu*, meaning "lichen" (*AH.* 50: see *ABL.* No. 367, 8: *TR.* i, 2: Gadd, *CT.* xl, p. 6). Gwynn (*PSBA.* 1914, 248, 93) quotes *šumma ina bīt ameli ina libbi karpāt tabāti ka-mu-nu innamar*, etc., "If in a man's house in a pot of vinegar *kamunu* appears," i.e. the mother of vinegar, a gelatinous substance which collects when vinegar is kept in open vessels (*EC.* 27).

BRP. iv, 22, *JRAS.* 1924, 456, gives . . [š]á . . (?) *išid ibbini uššū šá-niš ka-mun ibbini*: ^{ab}angab-ū " . . [whi]ch (on) the root of tamarisk comes forth, alternatively, *kamunu* of tamarisk; alum".

Now this use of lichen in alum at once suggests dyeing, the lichens frequently providing good dyes when mordanted with alum. "Lichens all grew on the barks of various trees" (Leighton, "On the Lichens of Ceylon," *Trans. Linn. Soc.* xxvii, 1811, 161), although it must be admitted that I cannot find any definite example given of a lichen on a tamarisk in the literature. I have gone into the subject more fully in *JRAS.*, l.c.

^{ib}Ka-mun ^{ib}bī-[i -ni] occurs once in *MT.*, *AM.* 85, 1, vi, 11.

I. 1. ^{šam}HI-IŠ-ŠAR, *ḥassu*, *Lactuca sativa* L., Lettuce.

2. ^{šam}HI-IŠ-DU₁₃-ŠAR, *guzazu*, *muraru*, "Bitter Lettuce."

¹ *Mat.* has [^{ib}rin]-tir-šar ^{ib}bīni (?).

1, 2. CT. xix, 50, K. 8727 and K. 13577, added to K. 8667 and S. 387 (Pl. 29): Pl. 35, S. 1316:

HI-IŠ-ŠAR	ḥa-as-su
HI-IŠ-DU ₁₃ -ŠAR (:) ¹	gu-za-zu
HI-IŠ-DU ₁₃ -ŠAR	mu-ra-ru
² HI-IŠ-ŠIŠ-ŠAR	mar-ru- ³
HI-IŠ-ŠUD ⁴ -ŠAR	ši-hu-
HI-IŠ-UR-KU-[ŠAR]	⁵
HI-IŠ-UR-BAR-RA-[ŠAR]	. . . . .
NUMUN HI-IŠ-[ŠAR]	. . . . .
MUH-AŠ-AŠ-Š[AR]	MUH-AŠ-AŠ-ŠAR

Note that HI-IŠ-ŠAR occurs MB. 16, in the same group as *Ammi* (see p. 69, where I have suggested that HI-IŠ-ŠAR here may perhaps be a different plant from our present one, perhaps parsley, Syr. ḥ^ešā).

Meissner rightly compared the Syr. ḥass^ethā, Aram. ḥassā lettuce, ZA. 1891, 293. Zimmern, AF. 57, compared the Arab. murār and the Syr. ḥas m^erārē "bitter lettuce" with the Assyrian muraru (for the Arabic, cf. FJ.² i, 432). The latter must be distinct from marrutu šAR, which is kept apart in the MB. register preceding HI-IŠ-ŠAR in MB. Guzazu, in its Sumerian form "the small lettuce", is probably the cabbage-lettuce as contrasted with the upright Cos lettuce, and we should probably see in this a cognate to the Syr. gaddīdhā "bitter" (geddē is *absinthium*, not representing any of the lettuces here).

With ^{Sam}MUH-AŠ-AŠ-ŠAR, some kind of lettuce, compare ^{Sam}MUH-AŠ-AŠ, *erištum* ("(strong) smell"), the fenugreek (p. 65). If we are to see some reference to a smell in ^{Sam}MUH-AŠ-AŠ-ŠAR (as a lettuce), we can identify it with *Lactuca virosa* L., a strong-smelling plant.⁶

HI-IŠ-ŠAR is not common in MT.:

^{Sam}HI-IŠ-ŠAR-seed is bound on swellings with cummin-seed steeped in rose-water (AM. 75, 1, iv, 8 + 18, 5). According to LPG. 267, lettuce cures inflammations when cooked and applied as a poultice: Pliny (NH. xx, 26) says that lettuces are applied with salt to recent burns, and an application of them with saltpetre and then wine arrests spreading ulcers.

^{Sam}Hassu is used in the description of the mythical being in Tod. 47, 14, as representing tulā[tušu] "his breasts (nipples)", not, I think

¹ S. 1316 makes two lines of this and the next, but Pl. 50 only one.

² Pl. 50 has ^{Sam}ma-ra-ru šAR . . . , and it is uncertain whether it includes this line, but it probably does.

³ Perhaps restore from MB. 15, mar-ru-tu šAR.

⁴ Clear on S. 1316, but Iḥ on Pl. 50.

⁵ S. 1316 has . . . kal (?) -[bi (?)].

⁶ There may, of course, be some sort of connection between ^{Sam}MUH-AŠ-AŠ-ŠAR and ^{aba}MUH-AŠ-GE₂-GE₂, arsenious acid, the white mass compared to a (sheep's) brain, as displayed in the bazaars. The white, inspissated juice of the lettuce (*lactucarium*) leads us to suspect a similar product from fenugreek, its Arabic name ḥilbah being parallel to the Latin *lactuca*, as derived from the words for milk. This may be the "ropy mucilaginous decoction" (PC. xxv, 212) obtained by boiling the seeds of the fenugreek, an ounce of which "renders a pint of water thick and slimy" (*Encyclopædia of Botany*, 389).

"seine Würmer" as Ebeling, as also *ib.* 32, 15, "Fisch sind seine Würmer" for *tulatušu*.

The lettuce (*Lactuca saligna* L.) is common in sub-alpine regions in Syria, Mesopotamia, Babylon, Persia, and Egypt: *L. scariola* L. in Syria and Mesopotamia (*FJ.* i, 424). *L. sativa* is cultivated everywhere in Syria and Palestine (*FP.*² ii, 146).

J. 1. ^{šam}*Hašû*, *Thymus vulgaris* L., Thyme.

2. ^{šam}*Hašânu*, another species.

1. ^{šam}*Hašû* occurs thus in *MT.*:

Uncertain disease, alone (^{šam}*ha-še-e* UŠ) in *nidi* (slime (?)), of fish, pour into anus, *AM.* 75, 1, iv, 11: ^{šam}*ha-še-e*, alone in "milk of virgin kid", pour into anus, *ib.* 12. For *maš-tab-ba*, †, drink in oil and *kurunnu*-beer, *AM.* 64, 1, 35, *dup.* 16, 4, 4. Uncertain disease, †, drink, *AM.* 75, 1, iv, 13, 15. Pour ^{šam}*ha-šu-u* into uterus, †, *KAR.* 195, r. 22.

In *MB.* 38, written *ha-še-e* ŠAR, identified by Meissner (*ZA.* 1891, 294) with the Aram. *hâšâ* "thyme", included with *zamburu* ŠAR, *ib.* 37, Syr. *zabbûrâ* "thyme" (perhaps the same word as *thymbræum*, *FP.*² ii, 105).

Thyme was seen at Leilan (Rich, *Koord.* i, 47). Several kinds are found in Palestine-Syria, *FP.*² ii, 335.

2. ^{šam}*Hašânu* has presumably the same relation to ^{šam}*hašû* that ^{šam}*šimrânu* has to ^{šam}*šimru*. It occurs thus in *MT.*:

For *ḥar*²¹ (*lungs*) bray, eat alone without a meal, *KAR.* 203, iv, 22 (one of nine for the same, *Pl.* 48, Rm. 328, v, 2). *Strangury*, alone in oil and *kurunnu*-beer drink, *KAR.* 203, i, 29, *dup.* *Pl.* 27, K. 4430, 8. Uncertain disease, †, drink, *AM.* 51, 7, 5. *Flatulence, etc.*, with fir-turpentine, a *mašqitu* (potion), *AM.* 41, 1, iv, 35. *Hand of Ghost*, †, anoint, *AM.* 94, 2, ii, 14. Quantity, 1 carat, *AM.* 91, 6, 3. In an apothecary's (?) list, *ADD.* 1074, 10. 1 shekel with various other drugs, for the most part *riqqê* or other gums, and turmeric, *buṇnanu*, and *Acorus calamus*. 20 *qa* of *ha-ši-a-num* is mentioned (above ^{šam}*û-ku*, fir, 3rd Dyn. of Ur (*Türk.* 113, 1, 7). ^{šam}*Hašana*, †, is used for *qiš libbi* (some stomach trouble) in Kassite times, Waschow, *MVAG.* x, i, 35, l. 36).

Pliny, *NH.* xxi, 89 says that there are two kinds of thyme, both good for coughs, expectoration, and for stomach and bowels. Thyme, he says, is also given for epilepsy (*cf.* "Hand of Ghost"), asthma, and catamenia; a decoction brings away the dead foetus, and is given to males for flatulency and pains in the bladder. The small quantity of 1 carat in *MT.* is comparable to the "dose of one denarius of thyme to one sextarius of oxymel", and Pliny's warning to use it only in moderation.

It is probable that ^{šam}*hašû* and ^{šam}*hašânu* are closely allied in species (see above), and either of them may be any one of those in *FP.*² ii, 335, and are parallel in relationship as are the Arab. *za'tar* and *za'tarān* (see *FJ.* ii, 104: for ^{šam}*zateru* see below). It is curious that we do not know the Sumerian for either.

K. 1. ^{šam}*Zateru*, the Arab. *za'tar*, *Origanum Maru* L., marjoram.

2. ^{šam}*Šibburratu*, *Peganum harmala* L., rue.

3. ^{šam}*Anameru*, probably the same.

1-3. Pl. 33, Rm. 356, 9 ff., restored from B.M. 108860, CT. xxxvii, 31, 37 ff. :

	<i>šam</i> za-le-ru	<i>šam</i> šib-bur-ra-tú
10.	<i>šam</i> LUḪ-MAR-TU	<i>šam</i> "
	[<i>šam</i> LUḪ-MAR-TU-KUR]-RA ¹	<i>šam</i> " <i>ša-di-e</i>
	<i>šam</i> si-mat KAM	<i>šam</i> ka-mu-nu
R. 1.	<i>šam</i> si(?) -mat eqli ²	<i>šam</i> a-na ³ -me-ru
	..... -ni ⁴	<i>šam</i> "
	..... -li ⁴	<i>šam</i> "
	<i>šam</i> ti-ni eqli ⁵	<i>šam</i> "
	<i>šam</i> ŠAR eqli ⁵	<i>šam</i> [,]
	<i>šam</i> a-na ⁶ -me-ru	<i>qa-li-pu</i>
	[<i>šam</i> a-na-me]-ru ⁷	<i>šam</i> la-qa- . .
	<i>šam</i> a-na-me-ru ⁷ ut-liš	<i>šam</i> UR-PI-P[I] . . ⁸

(The order on VM., e.g. Pl. 42, K. 4140, B, is *šam*šibburratu, *šam*kamunu, *šam*anameru.) Mat. 86, 7-9, 26, gives the equation *šam*LUḪ-MAR-TUM -ŠAR : | šib-bur-ra-tu | si-in-par(tú)-ru.

First let us take two of these in MT., *šam*šibburratu and *šam*LUḪ-MAR-TU :

(1) *šam*šibburratu : Uncertain use, prob. for *anus*, 10 shekels, †, AM. 42, 2, 6. Foul breath in mouth, uncertain use, AM. 26, 6, 9. For "heat of the day", etc., trouble in the *anus*, 10 shekels, †, as enema, AM. 57, 7, 7 (practically dup. of KAR. 157, 18 ff., RA. 1929, 53). Strangury, †, drink, AM. 59, 1, 39.

(2) *šam*LUḪ-MAR-TU : Sorcery, †, drink (Boissier, Rev. Sém. 1894, 135, 4, and 138, 20). *šam*LUḪ is given as the name of a plant without equivalent, Scheil, RA. 1921, 5, r. 2.

*šam*šibburratu (AH. 61) must be the Syr. šabbárá, *Peganum harmala* L. "rue". Its equivalent above, *šam*zateru, is obviously the Arab. za'tar, sa'tar "thyme" or *Origanum Maru* L. "marjoram" (AH. 270 : FP.² ii, 334-5). Actually the Assyrian for "thyme" is settled as *šam*zamburu and *šam*hašá (p. 74), and so, while accepting the philological connection as correct, we shall probably have to consider that either (a) zateru is marjoram, and not a proper equivalent for "rue", or (b) there is a difference in the respective values of the Assyrian and the Arabic words. That *šam*šibburratu is rue is clear from its equivalence with *šam*LUḪ-MAR-TU "Syrian washing plant", i.e. on account of the lye obtained therefrom. I have seen the women at Carchemish burning the rue which they have

¹ 108860, *šam*LUḪ-MAR-TU = *šam*ditto . . . , followed by a horizontal division line.

² 108860, GÁN, but Rm. 356 A.ŠĀ.

³ 108860, ku (?) for na.

⁴ For these two lines 108860 has three :

<i>šam</i> GURUN (?) -MA (?)	|	<i>šam</i> [,,]
<i>šam</i> ša-mi LU- ⁵ šf-a	|	<i>šam</i> [,,]
<i>šam</i> ša-mi ru- . . imeri	|	<i>šam</i> [,,]

⁵ Rm. 356, A-ŠĀ, 108860, GÁN.

⁶ 108860, šu.

⁷ 108860, ditto.

⁸ 108860 has an additional line, kima *šam* . . .

gathered from the great mound for this purpose (see my *Pilgrim's Scrip.* 310, and for a picture of a woman in Anatolia actually burning rue, see Gelb, *Inscr. from Alishar* 26). The women of Mosul appear to have no such custom, although certainly the plant grows on the mound of Kouyunjik. *FP.*² i, 272 cites as its habitat Aleppo, Tripoli, Petra, parts of Sinai, etc. ^{am}*šibburrat šadē* "rue of the mountains" must then be perhaps *Ruta montana* Clus. or *R. latifolia* (Salisb.), which grows on hillsides and in thickets (*ib.* 275).

The introduction of the solitary ^{am}*kamunu* in *l.* 12 is doubtless because of its value ^{am}*simat* KAM, i.e. *egli* (*D.* 406, 3) or *ereši* (*ib.* 2), which may possibly be the same as the next line ^{am}*si(?)*-*mat egli* (i.e. *GAN*?) = ^{am}*anameru*. This latter is probably the same word as the Arab. *ħarmal*¹ "rue" (*Peganum harmala* L., *FP.*² i, 272, the Syrian rue, *ib.* 509), since it is juxtaposed to ^{am}*šibburratu* (*p.* 75). Its seed is used in a poultice, †, *AM.* 15, 3, 5. The Syriac equivalent for *ħarmal* is *arm'elā*, a close parallel to *anameru*, so far as consonantal variation goes, just as the Assyr. *almattu* (*almantu*) "widow" = Arab. *arm'lāh*, and the Assyr. *lamattu* (*lamantu*) "ant" = the Heb. *nē'mālāh*.

Cf. the group in *VM.*, *Pl.* 42, K. 4140, B, 18-20: *Pl.* 44, K. 4152, 42-4: *Mat.* 88, i, 66-8:

^{am} <i>šib-bur-ra-tu</i>	|	<i>ina ħa-mi-i²-du</i>
^{am} <i>ka-mu³-nu</i>	|	<i>ina ID⁴-kappi</i> <i>su-din⁵-ni</i> ⁶
^{am} <i>a-na-me-ru</i> ⁷	|	<i>ina ūr⁸-nu-ū</i> ⁹

"Rue in *ħamīdu*, cummin in a bat's wing (feather), rue in mint." The connections are not clear, and the "bat's wing" may be an alchemist's synonym.

In omens ^{am}*anameru* (^{am}*PI-na-mi-ru*) is found between ^{am}*sa-as-su* and ^{am}*su-pa-lu* (*p.* 268), *TR.* ii, 60, 4.

Besides the above forms we have ^{am}*si-in-par* (or *tū-ru*), equivalent to *šiburratu* (*p.* 75), which suggests the Syr. *sand'irig* (*FJ.* iii, 510), and, in *MB.*, *biššu* ŠAR (alongside *zūpu* ŠAR "hyssop", *zamburu* ŠAR and *ħašē* ŠAR "thyme", and *buṭnana* ŠAR (uncertain, see *JRAS.* 1934, 781). With *biššu* ŠAR Meissner rightly compared the Syr. *baššāšā* "rue" (*ZA.* 1894, 294): another form is *buššu* (Gwynn, *PSBA.* 1914, 243).

The few uses in *MT.* coincide with that of rue in medicine. Pliny (*NH.* xx, 61) prescribes it for stomachic and urinary troubles, sores, and shortness of breath. In India (*BMM.* 202 ff.) the juice is anthelmintic, the leaves diuretic and emmenagogue, and the plant is an abortifacient. The seeds of *P. harmala* are used for retention of urine (*IMP.* i, 246). *P.* 1029 gives rue as antispasmodic, stimulant, rubefacient, and as enema in colic in children. (On the eating of the seeds in Turkey, see *FJ.*² iii, 318).

¹ Forms occurring are *αρμελα*, *αρμava*, *χαρμελ*, *armola*, *αραβλα* (and Honein, quoted *FP.* *ib.* gives *πῆγανον ἀγριον* = Syr. *arm'elā* = Syr. *baššāšā*, Phoen. *χουρμα*, *FJ.*² iii, 509 ff.).

² *Mat.* omits.

³ *Mat.* adds *u*.

⁴ Re-examined: [*sic*] *Mat.* ID.

⁵ *Mat.* *ti*.

⁶ *Sudinnu* is probably "bat"; cf. *pi-ti* SU-DIN-ĦU, *AM.* 73, 2, 4, which is more probable as the dung of bats than of other birds dwelling in clefts.

⁷ *Mat.* *rum*.

⁸ *Mat.* *ur*.

⁹ *Mat.* *u*.

The additional equivalences on p. 75, n. 4, "drug for sheep," "drug for . . . ass," suggest a comparison with *NH.* xx, 51: "Of all the plants that are grown, rue is the one which is most generally employed for the maladies of cattle."

- L. 1. ^{šam}BÛR-DA, *urnû*, *Mentha (Pulegium)* L., mint.
 2. ^{šam}Qurnû, *Origanum vulgare* L., marjoram.
 3. ^{šam}Nanihu, *nanahu* šAR, perhaps a form of the above, or *Ammi Visnaga*, Ammi.

1-3. (A) K. 4586 (*Pl.* 31) joins K. 4216 (*Pl.* 19):

.....
.....	[šam]ur-nu-u
.....	[šam]ur-nu-u
.....	[šam]ur-nu-u
.....	[šam]ur-nu-u
.....	[šam]u]r-nu-u
.....	[šam]u]r-nu-u
.....	[šam]na]-ni-hu
.....	[šam]ur-ni-e ?]
šamBÛR-SUN-DUL(?) . .	šamur-ni-e
šamBÛR-DA	šamur-ni-e
riqBÛR-DA	šamur-ni-e
šam šar-ti	šamur-ni-e
šamqur-nu-u šamu	šamqur-nu-u
šamqur-nu-u ta-ba-li	šamqur-nu-u
šamhu-ur-nu-u	šamqa-nu-u(?) . . .

(B) *Pl.* 32, *Rm.* 364:

..... SUB	.....
[šam]ša-mi]TU ^{pl}	šam
[šam]šam(?) tāk-za-ti	šam
[šam]k]a(?)-li-ku-la	šam „ (?) . . .
[šam]ur]-nu-u šamu	šamúr-[nu-u]
[šam „] arqu	šam [„]
[šam „] nāri	šam [„]
[šam]n]a-ni-hu	šam [„]
[šam]q]u-un-di	šam [„]
[šam]qur-n]u-u šamu	šamqur-[nu-u]
[šam]qur-nu]-u ta-ba-li	.....
.....

Possibly in 108860, *CT.* xxxvii, 32, iv, 59 ff.

In the identification of these plants, the previous difficulty whether the Syr. *nan'ā* "mint" or *ninyā* "Ammi" is the cognate representative of ^{šam}ninū has been removed by the evidence that ^{šam}ninū is actually the latter. The problem, however, is not confined to Assyrian: Bar Bahlul speaks of the interchange of the two Syriac words (*FJ.* ii, 76).¹

¹ On the interchange of other plants in later Semitic medicine, see *FJ.* ii, 77. Indeed, *FJ.* ii, 104 says that *hāsā* (thyme) is "in Babylon für *korū* gesetzt".

From the following it will be seen that there is now no doubt about *šamurnû* being "mint". The most satisfactory initial evidence comes, not from *šamurnû*, but from the other members of this group:

šamQurnû = the Syr. *qûrnîthâ*, *Origanum*, *Mentha Pulegium* L., with a variety *dh^enahrâ* "of the river", *Calamintha officinalis* (Brock. 339). *FJ.* ii, 77 gives the Syr. *qûrnîthâ* as equivalent to the Arab. *habaq* (basil), but the Mishnaic form as probably *M. Pulegium* L. (?), or calamint). The two kinds of *šamqurnû* ("red" and "of the dry land") are parallel to the three kinds of *qûrnîthâ* (*dh^ehaqlâ* "of the field"), *dh^etûrâ* "of the mountain" (= *Origanum*), and *dh^enahrâ* "of the river" (= calamint", *ib.* 78): here the colour "red" agrees with the pink of the corolla of *Mentha Pulegium* L. (*FP.*² ii, 331), or of *Calamintha officinalis* Moench. (*ib.* 343). Both these occur in the Near East, but, having regard to the identification subsequently of the Assyr. *hamuk šar* with *Mentha Pulegium*, *Calamintha* would be preferable.

With this evidence that we are dealing with words of the nature of mint, we may consider the equivalence of the Assyr. *šamurnû* with the Syr. *nân'â* and Arab. *na'na'* mint as certain. But, more than this, there is good evidence that *šamurnû* is philologically the same as the Syr. *nân'â*:

(a) Assyrian initial *u* representing final ' is found in *uqnû*, Syr. *qûnî'â*, *cyaneus*: Assyr. initial *a* representing ' in the second syllable in *azupiranu*, Arab. *za'farân*, saffron.

(b) Assyr. *r* and *n* interchanging in the first syllable are found in *arnu* and *annu* "sin".

(c) An instance in Assyrian of a prosthetic vowel before *r* and *n* is found in *irmitlu*, from *ranânu* "triumph". It is, of course, unnecessary to mention the persistent varieties of interchange in words containing the letters *l*, *m*, *n*, *r*.

With this evidence that we are dealing with the *Labiatae* we can examine the uses in *MT.* Actually *šamqurnû* does not occur in *MT.*; *šamurnû* is found thus:

(1) *Simply: ext.*: *Eyes*, bray, and blow in through a copper (bronze) tube with willow-nitre, *AM.* 9, 1, 40. *Nose*, †, in cedar-oil, *AM.* 26, 1, 4 (probably): *ib.* 2, 5. *Ears*, brayed with myrrh and inserted in wool, *AM.* 37, 1, *r.* 14. *Mouth* (hardly tooth), †, *AM.* 78, 1, 13: cleanse mouth, †, *AM.* 28, 7, 12 + 78, 1, 15: *foul breath*, †, *AM.* 26, 6, 8. [*Swollen muscles* (?), *cf.* 1, 13], †, poultice, *AM.* 98, 3, 11. *Swellings*, †, probably, *AM.* 73, 1, i, 7: †, bind on, *AM.* 74, ii, 13.

Feet itching, bray alone and apply, *AM.* 74, 1, iii, 3. *Anus-trouble* with bruise (*dikša*), †, *AM.* 58, 2, 2, 8: *anus-trouble*, alone, *KAR.* 203, iv, 1 (*cf.* *Pl.* 30, S. 698), probably apply.

Int.: Too much *saliva*, †, without a meal [drink] in beer, *AM.* 31, 4, 12: for *illatu* (spittle), †, *ib.* 22. *Temples, etc.*, 15 shekels, †, drink (see below, *Enema*), *Kû.* iii, ii, 21. Probably *urinary*, †, drink, *AM.* 60, 1, 7. *Sorcery* (?), †, drink, *AM.* 87, 5, 13, perhaps [*šamur*]-*nî-e*: *sorcery*, †, drink, *AM.* 89, 1, 7: against *ZI-TAR-RU-DA*, †, drink, *AM.* 90, 1, ii, 16, 20. *Hand of Ghost*, †, drink, *AM.* 76, 1, 9, 13. For *sores* (*umšati*), †, drink, *AM.* 17, 5, 4. For "fire of the stomach", † [drink], *AM.* 40, 1, 47. Uncertain use, 2 shekels, *AM.* 90, 1, iii, 8: 10 shekels, *AM.* 42, 2, 6.

Enema: *Heartburn* (probably), †, *AM.* 43, 6, 5. "Constriction

of anus," †, *AM.* 56, 1, 5. *Temples*, 15 shekels, †, *Kü.* iii, ii, 25 (see above, *int.*).

(2) *Seed*: To bathe a sick "place", †, *AM.* 75, 1, iv, 6.

(3) "Water": for something like heartburn, †, drink, *AM.* 76, 1, 16.

(4) *PA* (tops): On poultice in fat, †, probably lungs, *AM.* 54, 1, r. 7: "*kīṣirte* *ḤAR*^{pl} (congestion of the lungs) or a cough," in poultice, †, *AM.* 83, 1, r. 22.

The species *šamurnā ša šadē(e)* "mountain mint" is an ingredient in a virility charm, to be drunk, *Liebesz.* 56, 1. According to Culpeper (*Eng. Phys.* 1814, 208) mint "stirreth up venery".

Now the more modern medical uses of these *Labiatae* are:

(a) *Mentha Pulegium* L., supposed to drive away fleas; formerly emmenagogue, antispasmodic, expectorant, carminative stimulant, and used for hysterical complaints (*BMP.* No. 201).

(b) *M. viridis* L. and *M. piperita* L. (the oil, leaves, and tops used of both); carminative (*BMP.* Nos. 202, 203), the oil of the latter being prescribed in *P.* 764 as an aromatic stomachic allaying nausea and colic, while ext. it is a local anæsthetic, relieving neuralgic pain. *Cycl. Bot.* i, 262 mentions the infusion of mint in warm water as stomachic: *LPG.* 298 says that mint is used for menses and in powder in poultice for tumours and ulcers, and its oil against indolent swellings of the gums, and for decayed teeth, and suggested as aphrodisiac. The various forms of mint are common in Syria (see *FP.*² ii, 329); mint and peppermint both occur in Mesopotamia (at Leilan, *Koord.* i, 47).

šamUrnū will therefore be *Mentha*, either *M. pulegium* L. or *M. piperita* L. (cultivated), and *šamqurnū* the *Origanum vulgare* L. (or similar), the marjoram.

We can go on to the curious form *ḥamuk šAR*, obviously not a native Assyrian word. I took this in *AH.* to be the Syr. *ḥaûkâ*, the Arab. *ḥabaq* (*FJ.* ii, 78). The equivalence for this is sometimes *Ocimum basilicum* L. (basil) (the Arabic *ḥubuqbuq* being *O. gratissimum* Forsk. (*ib.* 80), but also (*ib.* 65) *ḥabaq* is *Mentha pulegium* L. or *M. crispa* L., and *ḥubuqbuq*, *M. Sylvestris* L.; indeed, Sir Richard Burton (*Land of Midian* ii, *App.* iv) gives *ḥabaq* (in N. Midian) as *M. lavandulacea* W. (pounded and mixed with fresh dates "good for stomach"). Seeing that *ḥamuk šAR* is included in *MB.* among the mints, I cannot help feeling that we must see in it one of the *Labiatae*, nearer to mint than basil, albeit basil (*Ocimum basilicum* L., Arabic *raiḥān* in Basrah, and cf. *FJ.* ii, 65 ff.) has a strong fragrance. Yet, on the other hand, we do not find the word *ḥamuk šAR* in the mint-lists of the Assyrians.

Nevertheless it would not seem unreasonable to consider *ḥamuk šAR* (possibly a foreign word) as a mint comparable to the Arab. *ḥabaq* in its value *M. Pulegium*, while we may see in the Arab. *ḥubuqbuq* the Assyr. *ḥambaququ*¹ (similar to the Heb. *Habakkuk*, suggested by Meissner, *ZA.* 1891, 296, the latter being compared by Hommel to our *ḥubuqbuq* (*Aufs. u. Abh.* 27, quoted by Meissner, *l.c.*) (as *Mentha Sylvestris* L., *FJ.*² ii, 65).

¹ [Quoted in the colophon of the series *URU-AN-NA*: *šammal-la-kal* as the equivalent of a name *šamḥa-ra-am-bi*: see introductory note to this book.]

^{Sam}*Nanihu* (with *nanahu* šAR in *MB.*) would appear to be the Persian *nānḫūwāh*, accepted as *Ammi* (*BMM.* 326; *MI.* i, 38).

^{Sam}*Hurnū*, with its equivalent *qa-nu-u*(?) . . . ("reed (?) . . .") has no connection with *qurnū* apparently, other than a similarity of sound.

MB. 9-12 gives the group *urnē* šAR, *nanahu* šAR, *hamuk* šAR, *qurnē* šAR¹ in one register, showing that they are at all events of the same genus probably, if not of the same species.

M. ^{Sam}*MÁ-ereš-MÁ-LÁ* (and other forms), *Rosmarinus officinalis* L., rosemary.

The plant-name is spelt in various ways:

^{Sam}*MÁ-PIN* (= *ereš*)-*MA-LÁ-e*, *Kü.* i, i, 20:

^{Sam}*MÁ-PIN* (= *ereš*)-*MÁ-LÁ*, *AM.* 5, 5, 14:

^{Is}*MA-PIN-eš-MÁ-li-e*, *CT.* xxiii, 36, 50:

^{Sam}*MA-PIN* (= *ereš*)-*MÁ-li-e*, *AM.* 5, 1, 13:

[^{Sam}]*MÁ-NIN* (= *ereš*)-*MÁ-LÁ*, *Pl.* 23, K. 259, 12, *dup.* ^{Sam}*MÁ-eri-NIN-MÁ-LÁ*, *KAR.* 203, i, 11.

^{Sam}*MÁ-eri-iš-MÁ-RA*, *Kü.* ii, ii, 54: cf. *AM.* 2, 1, r. 9 and 69, 2, 7.

^{Is}*MÁ-NIN* (= *ereš*)-*NIN* (= *MÁ*)-*RA*, *AM.* 60, 3, 13.

^{Sam}*MÁ-PIN* (= *ereš*)-*MÁ-RA*, *CT.* xxiii, 31, 68.

This does not look like an original Sumerian word, and the variations suggest an artificial combination made up in Assyrian.

It is found in *MT.* thus:

(1) *Simply*: *ext.*: *Decayed teeth*, alone, apply, *KAR.* 203, i, 11 (*dup.* *Pl.* 23, K. 259, 12). *Feet*, †, bathe, *AM.* 69, 2, 7. *Grey hair* in youth, with the head of a black raven, *etc.*, reduce, bray, mix in sweet oil, shave head [and apply], *AM.* 5, 1, 13 (cf. *SM.* ii, 691, "mix the fat of a black raven with moist *qurt^hbhê*" against white hair): for "dry" head, alone in rose-water bind, *CT.* xxiii, 31, 68. *Weak beard*, apply with cantharides, *etc.*, in oil, *CT.* xxiii, 36, 50 ff.

(2) *PA* (tops): *ext.*: *Head- or hair-trouble* (probably weak hair, since cantharides is in the preceding receipt) $\frac{1}{3}$ *qa* of *PA* of it, alone in rose-water, shave head and bind on for three days, *CT.* xxiii, 25, 31 + *AM.* 2, 1, r. 9. *Itch or scab* in head (*kurara*), shave †, bind on, *AM.* 5, 5, 14.

Int.: *Stomach*, drink alone in water, *Kü.* ii, ii, 54.

Quantity: 10 carats, bray with 10 carats of . . ., *Kü.* 1, 1, 20.

In *AH.* 197 I thought that it was *Salvia*, sage, but changed my opinion to *Rosmarinus*, rosemary, in *AJSL.* 1937, 222. Rosemary possesses stimulant and carminative properties: its volatile oil is a powerful stimulant and carminative, and is used *ext.* with other substances to promote the growth of hair: it is an ingredient in some rubefacient liniments: it is given *int.* occasionally in hysteria and for nervous headaches, and a weak infusion of the fresh leaves is used by dyspeptics (*BMP.* No. 207: cf. for this latter Pliny, *NH.* xix, 62. *LPG.* 392 says that it contains more camphor than the other labiatae, which doubtless accounts for its Assyrian use in toothache. But botanically the two classes are sufficiently close to one another for us to be justified in uncertainty (cf. *EB.* xith ed., s.v. "Rosemary").

¹ This was read *si-mi-e* šAR incorrectly by Meissner.

The fact that the word has no proper Sumerian value is an indication that it is a foreign word, or that the plant came into *MT.* after Sumerian times. *Rosmarinus officinalis* L. is found in the Lebanon ("probably escaped from cultivation", called in Arabic *haša al-bān*, *FP.*² ii, 362). *FJ.* ii, 68 gives the Arabic as *klēl*, *klīl*, *hašā lubān*, *haša albān*, etc., *BMP.* 207 says that it is a native of the Mediterranean district: *FP.*² ii, 362 says that it is found in the Lebanon, "probably escaped from cultivation from Southern Europe."

If ^{Sam}*MÁ-ereš-MÁ-RA* is really *Rosmarinus*, the similarity in sound between it and the Latin is extraordinary.

- N. 1. UKUŠ-ŠAR, *qiššû*, *Cucumis sativus* L., cucumber.
 2. ^{Sam}UKUŠ-TI-GIL-LA, *tigillû*, *Cucumis colocynthis* Schrad., colocynth.
 3. ^{Sam}UKUŠ-TI-GI-LI-KUR-RA, *hīl baltī šadī*, *Ecballium elaterium* Rich, squirting cucumber.
 4. UKUŠ *qurdillum* ŠAR, prob. *Lagenaria vulgaris* Ser., the bottle-gourd.

The interesting point about these cucumbers is that they are all defined by the sign UKUŠ, which is also used in the plant ^{Sam}UKUŠ-RIM "poppy", because of the similarity of the poppy-capsules to the small cucumber. If the sign UKUŠ is really "a stringed instrument" (*D.* 550), it will represent the ovoid or hemispherical belly of the lute or guitar.

1. Omitting for the moment the UKUŠ-RIM (poppy) group (*p.* 223), we have:

Pl. 21, K. 267 + *Pl.* 32, K. 4180, B, viii-vii, 5-16: restored from *Pl.* 18, K. 4354, iii-iv, 6-11:

(A) 5.	UKUŠ-[ŠAR] ¹	<i>qiš-šu-ú</i> ²
	UKUŠ-DU ₁₃ -Š[AR] ³	<i>ú-ba-nu</i> ⁴
	UKUŠ-	<i>šá-ru-ru</i> ⁴
	ŠIR-[GUD (?)]	<i>šá-ru-ru</i> ⁴
	zir [UKUŠ-ŠAR]	<i>zir qiš-še-e</i> ⁴
10.	KAT	^{Sam} UKUŠ-TI-GIL-LA ⁵
	^{Sam} [UKUŠ]	<i>mu-uš-ri-tú</i> ⁶
	^{Sam} UKUŠ-LI-LI-GA	<i>tam-šil a-ru-ni</i>
	^{Sam} UKUŠ-LI-LI-GA	^{Sam} <i>qiš-šu-u</i> ⁷ <i>šá šu-ma-me-ti</i> ⁸
	[UKUŠ-ŠIR-GUD-ŠAR]	<i>iš]-ki al-pi</i> ⁴
15.	. . . . .	. . . UKUŠ- ^d <i>Adad</i> ⁴
	. . . . .	. . . UKUŠ ^{pī} ⁴

¹ Br. 10887: *SAI.* 8359. Var. K. 4354, ^{Sam}[UKUŠ-ŠAR].

² K. 4354 apparently [*qiš-š*]a-ti (re-exd.).

³ Restored from *Pl.* 4, ix, 36.

⁴ K. 4354 apparently omits line.

⁵ K. 4354 inserts after this line ^{Sam}UKUŠ-TI-GIL-LA | ^{Sam}.-bu.

⁶ This line may be l. 2 of K. 4354 (^{Sam}UKUŠ] . . . | . . .-ri-tu).

⁷ Var. K. 4354, *ú*.

⁸ Var. K. 4354, *tī*.

(B) ii R. 44 (3), vii-viii:—

4. [UKUŠ]-ŠAR	<i>qiš-šu-u</i>
5. UKUŠ-DU ₁₃ -ŠAR	<i>ú-ba-nu</i>
6. UKUŠ-TI-GI-LI-ŠAR	<i>ti-gi-lu-u</i>

(C) Pl. 22, viii-vii, 31-5:

<i>šam</i> UKUŠ-TI-GIL-LA	<i>šam</i> -bu
<i>šam</i> „ KUR-RA	<i>ti-gi-lat šadī(i)</i>
UKUŠ-LI-LI-GI-ŠAR	ŠU-[u] (= <i>liligū</i>)
„ KUR-RA	Ditto <i>šadī(i)</i>

(D) Mat. 86, 12-10, 8-13, dup. Pl. 4, K. 4325, ix, 36-41:

UKUŠ-DU ₁₃ -ŠAR	<i>ú-ba-nu</i>	<i>ban-bil-lu</i>
UKUŠ-TI-GI ¹ -LUM ² -ŠAR	ŠU-u	<i>qiš-šu-u me-ra(?)³-ru-u</i>
UKUŠ-LI-LI-GI-ŠAR	<i>la-lik-ku(?)⁴-u</i>	<i>pi-qu-u</i>
UKUŠ <i>dam-šil-lum</i> ŠAR	ŠU	„
UKUŠ <i>qur-dil-lum</i> ŠAR	ŠU	<i>nam-ša-bu</i>
UKUŠ-ŠIR-GUD-ŠAR	<i>iš-ki al-pi</i>	<i>qiš-šu-u tuk-pi-tu⁵</i>

The sign UKUŠ is given without det. as equivalent to *qiššū* (D. 550, 7), long compared to the Heb. *qiššū'im* "cucumbers". *Qiššē* is used in Assyrian literature in comparisons: first, with what I think must be garnets, the small grain which is supposed to take its name from the seed of the pomegranate (*granaticus*, DACG. 163), the Assyrian comparing them to *zer qiššē* "cucumber seeds": and, secondly, in the well-known passage in Senn. 46, which I think may have been misunderstood: "With the bodies of their warriors I filled the plain like grass: *sapsapate unakis-ma baltašun abut kima bini qiššē simani⁶ unakis qatišun.*" Luckenbill's translation is not entirely satisfactory: "Their testicles I cut off and tore out their privates like the seeds of cucumbers of Siwan (June). Their hands I cut off." *Qati* may well have the secondary meaning "member", like the Heb. *yādh* in Is. lvii, 8 (cf. Eerdmans, ZA. 1894, 297, and see GE., Text., 81), in which case *baltašun abut* (without *-ma*) may be the first half of a circumstantial clause: "I destroyed their pudenda (their capacity for sexual pleasure), cutting off their members like *bini qiššē simani.*" The latter is difficult, but *bini* cannot mean "seed"

¹ K. 4325, GIL.² K. 4325, LA.³ Apparently *ma* on text.⁴ Or *šu*.⁵ So Mat., and not *banšu tukpitu*, as D. 551, 15.⁶ It is possible to compare the Heb. *bén pōrēth* "a fruitful bough" (lit. "son of a fruit-bearer") (Gen. xlix, 22). As Delitzsch (HWB. 177) saw, it is of dead warriors that this is spoken, and consequently is not so revolting as if they were alive. The intention was, of course, to prevent the enemy from enjoying life after death to the full (cf. the obscene plaques and groups probably for burial with the dead, with the idea of sympathetic magic).

(for which we already have *zir* in *zir qiššē*) which would have no sense. The probability is that *binu* here defines the actual fruit of the cucumber, for obvious reasons. If *simani* means the month of Siwan (May-June)¹ it coincides well enough with the growth of the *Cucumis sativus* L. ("March-July", *FP.*² i, 480).

Ziri qišim and "5 *qiššue*" are found in OB. letters (Kraus, *MVAG.* 1931, 50 and 99). Although cucumber seeds have a certain value in medicine (*SM.* ii, 204, 205: "chiefly us'd for Emulsions, and sometimes to express a cooling Oil from them for the Skin," *HD.* 22), they apparently do not occur in *MT.*

To continue with the other forms in this group:

The UKUŠ-DU₁₃-ŠAR "small cucumber" (*ubanu* "finger", "thumb") will be the short cucumber so plentiful in the Mesopotamian bazaars. Its synonym ((*D.* 7) *banbillu*, possibly *panpillu*, can hardly be the Syr. *puphnā*, *cucumis melo* (the Greek word *πεπων* ?),² Forskal (*FÆ.* 168) giving the Arabic as *dumairī*.

UKUŠ-ŠIR-GUD, *iški alpi*, "bull-testicles," represent the short, ovoid cucumber; cf. *PC.* viii, 1837, 212, describing the Indian *Cucumis utilissimus* as having a perfect oval fruit, and, when ripe, variegated with deeper and lighter yellow, coinciding with the synonym for our word, *qiššū tukpitu* (*BAG.* 292 giving for *tukpitu* "gesprenkelter Marmor (?)"):

Šaruru presumably in (*A.* 7, is simply a synonym for "cucumber", while in *l.* 8 it is apparently that cucumber known as "testicles of a bull". The Syr. *šerūrā*, *germen recens*, doubtless gave rise to the "Gurken-schlössling" of *AF.* 58. But our *šaruru* here is to be compared to the same word which means a "poppy-capsule", from the similarity of the two (*p.* 226).

UKUŠ *damšillum* ŠAR as a "cucumber" or gourd is as difficult as *MA* + GUNU *damšillum* (*p.* 302). It can hardly mean "Similarity-gourd", comparing Theophrastus, *EP.* vii, iii, 5, "thus the bottle-gourds become like in shape to the vessel in which it has been placed." Moreover, we already have the bottle-gourd probably in the following.

UKUŠ *qurdillum* ŠAR = *qurdillu* = *namšabu*. *Namšabu* is a vessel of some kind, thus giving us a clue to *qurdillu* as the Syr. *qardālā*, a pot or jar. This suggests *Cucurbita lagenaria* (*Lagenaria vulgaris* Sér.) for our plant, which acquires the form of a flask and forms good bottles (*PC.* viii, 1837, 212); it is a plant of South Asia (*FJ.* i, 542, quoting Keimer) and tropical Africa (*MPB.* ii, 1076). *Na-an-ša-bu* ŠAR occurs, however, in *MB.* r. 43, after "radish", and not with the cucumbers or gourds. The Pal.-Heb. is *qiššū habbaqbûg* (i.e. "cucumber of the flask", *FJ.* i, 542).

2-3. The Colocynth and the Squirting Cucumber.

From the ordinary cucumber we can go on to the Colocynth, UKUŠ-LI-LI-GI-ŠAR and ^{Sam}UKUŠ-TI-GIL-LA (= . . . -*bu*). ^{Sam}UKUŠ-TI-GIL-LA is not "melon", as I thought in *AH.* 40: *CT.* xvii, 19, 32, 36 (translated in *Devils* ii, 67, "wild cucumber" (?)) shows this: " , (= ^{Sam}UKUŠ-

¹[Or it may mean simply "in season".]

²It can hardly be the *Hibiscus esculentus* L., the Arab. *bāmiā*, so common nowadays in the Near East, which was probably unknown to the Assyrians ("in Ostafrika heimisch, in vielen Tropenländern cultiviert", *MPB.* ii, 667). At the same time there is another word for the short, ovoid cucumber, *iški alpi*.

TI-GIL-LA)-a *ša ina šēri edišši-šu ašû*, i.e. the *U.* which springs up of its own accord in the desert," is hardly a correct description of a melon, which is a field-product, carefully cultivated. We must, however, distinguish ^{Sam}UKUŠ-TI-GIL-LA from ^{Sam}UKUŠ-TI-GI-LI-KUR-RA (p. 81, *Ecballium elaterium* Rich), there being some possibility of confusing the two.

There is every probability of the group (A), ll. 10-12 on p. 81, representing the same plant. First, there is the similar-sounding UKUŠ-TI-GI-LUM-ŠAR, to be read *tigilû*, equivalent, therefore, to UKUŠ-TI-GI-LI-ŠAR (*tigilû*, (B) 6), and defined as *qiššû merarû* "bitter cucumber" (comparable to the Syr. *m'rârta dh'dhabhrâ*, the Arab. *al-hanzal al-murr*, SM. ii, 721), which at once suggests the Colocynth ("nauseous, acrid, and intensely bitter", VK. 538, the gourds of ii Ki. iv, 39). That ^{Sam}UKUŠ-TI-GIL-LA is certainly the Colocynth is confirmed by the magical text CT. xvii, 19, 32, already quoted. This is for Headache, beginning with a long description of the Headache-demon who "roams in the desert" (l. 1), and then "slays" the patient (l. 15). Then Marduk as usual receives advice from his father: "Go, my son (Marduk), the (UKUŠ)*tigillâ*, which springeth up of its own accord in the desert—when the sun entereth his dwelling, cover thy head with a cloth, and cover the (UKUŠ)*tigillâ*, and surround it with flour, and in the morning before the sunrise root it out from its place, and take its root; take the hair of a virgin kid, and bind it on the head of the sick man, and bind it on the neck of the sick man, that the Headache which is in the body of the man may be removed, and may not return to its place, like a straw which the wind whirlleth away" (*Devils* ii, 67).

Here the Headache is to be inveigled into the spherical Colocynth, which, it is hoped, will be mistaken for the head of the sick man. There are two possibilities here: the first, that there was a fanciful belief that the spherical Colocynth, with all its associations with evil, is the habitat of the Headache-demon by day, being vacated by its devilish occupant at night, when ghosts and demons usually prowl about the land, and that the magician will therefore find one of these gourds without a tenant; he must cover his head and the Colocynth with a cloth to guard against the attack of any wandering Headache demon returning to seek a resting-place, and must surround the Colocynth with a magic circle of flour with the same object. The empty gourd can then be used as a bait to attract the Headache-demon from the patient's head. The second possibility is that the Colocynth was not the normal habitat of the Headache-demon, and the visit of the magician is made by night because he is less easily seen then. This is not such an attractive view as the former, as the association of the spherical gourd and its poisonous qualities have obvious connections with this particular demon.

But in any case this is definite proof that ^{Sam}UKUŠ-TI-GIL-LA is the Colocynth.

That the UKUŠ-LI-LI-GI-ŠAR is the same plant is apparent, however strange it may appear. The description of it on (A) 12 (p. 81) that it is *tamšil aruni* "like a ball" (AH. 40, from *arû*, Heb. *yârâh* "to throw") obviously fits the spherical colocynth which grows in the desert on a trailing vine, inviting the traveller to stoop and pluck it, merely for the pleasure of throwing it. This is borne out by (D) 9 (p. 82), where

UKUŠ-LI-LI-GI-ŠAR = *piqû*, with which cf. Heb. *paqqû'ôth*,¹ the colocynth-gourds of ii Ki. iv, 39, and the late Heb. *p^eqa'ath* "ball" (*Sam*UKUŠ-LI-LI-GA = *Sam*qiššû ša šumameti "cucumber of the desert" (A. 13, p. 81) = Syr. *gattûth barrâ*, "cucumber of the desert" = colocynth, *AJSL*. 35, 139).

Mušritu, presumably equivalent of *Sam*UKUŠ-LI-LI-GA rather than *Sam*UKUŠ-TI-GIL-LA (at all events, for one of these two) may mean "Egyptian", as long ago suggested, indicating that the Colocynth was regarded as being a particular product from that country. It is the same word, doubtless, as occurs in the Phœn. *κουσιμεζαρ* = *σίκνος ἄγριος* (= *qiššû Mušrî*), quoted from *Diosc.* iv, 152, by Drake (Smith, *DB.* i, 372; note, however, that in Theophrastus, *EP*, Hort, ii, 476, the *σίκνος ἄγριος* is the *Elaterium*).

Liligû (*lalikkû*) has apparently no Semitic cognate.

In medicine the part of the Colocynth used is the pulp, freed from seeds, a powerful hydragogue cathartic, prescribed in combination with other drugs to prevent griping (*P.* 433). Ext., it is said to be used in frictions for intestinal worms, and sometimes for ailments of the joints, gout, rheumatism, and sciatica (*LPG.* 161). In *SM.* ii, 95, 100, the pulp is used ext. for eyes (i.e. perhaps the PA and even "seed" of *Sam*UKUŠ-TI-GIL-LA, below). *C. Colocynthis* L. was found at *el-Fatha* (Herzfeld, *Beih.* 32); the Colocynth is very common in the Near Eastern deserts.

It occurs in *MT.* thus:

(a) *Sam*UKUŠ-TI-GIL-LA:

(1) *Simply: Ext.*: Feet and arms which cannot be straightened, †, poultice, *AM.* 68, 1, 21 (HUL-TI-GIL- . . .).

Int.: Retention of the anus (fæces), with 21 others including UKUŠ-RIM, opium, probably drink, *AM.* 40, 5, 17 (the opium being doubtless to counteract the griping) (UKUŠ-TI-GI-LI). *Stone*, in . . . or wine drink, *AM.* 4, 4, 5, dup. in part of 30, 12 (. . UKUŠ-TI-GI-IL (?)).

(2) PA (tops): *Ext.*: In same tablet as above, †, *AM.* 68, 1, 21, l. 7 (PA *Sam*UKUŠ-TI-GIL-LA).

(3) Seeds: *Rimutu* (weakness), boil in oil and *kurunnu*-beer, †, bind on, *AM.* 52, 5, 15, prob. dup. *AM.* 5, 6, 7. *Temples, ext.*, †, *CT.* xxiii, 39, 1 (*Sam*UKUŠ-T[I-G]I-LA, dup. *KAR.* 188, 1, *Sam*UKUŠ-TI-GI-IL).

(b) *Sam*Tigilû: *simply*: presumably lungs, †, uncertain use, *AM.* 55, 4, 8 (*Sam*ti-gi-la-a). For disease of *mitri*, alone, drink in yeast of beer, *Pl.* 43, S. 60, ix-vii, 4, cf. dup. *KAR.* 203, ix-vii, 25). (For *Sam*tigilat šadi see p. 86.)

From the Colocynth, *Sam*UKUŠ-TI-GIL-LA and *Sam*UKUŠ-TI-GI-LI-ŠAR we can proceed to the similar-sounding *Sam*UKUŠ-TI-GI-LI-KUR-RA, which is given a section all to itself by the Assyrian botanist, showing that it is actually distinct from the *Sam*UKUŠ-TI-GI-LI-ŠAR.

Pl. 22, K. 267, vi-v, 39:

<i>Sam</i> UKUŠ-TI-GI-LI-KUR-RA	<i>hi-il bal-ti šadî(i)</i>
ŠA — KÚR — RA	<i>hi-il bal-ti šadî(i)</i>

¹ *Piqquti* šAR, *MB.* 67, Meissner, *ZA.* 1891, 297.

From (C) 31 ff. (p. 82) it would appear that this and the Colocynth were kept in close relation, and yet it is obvious that in the present grouping a wide distinction was made. Here in this particular syllabary (Pl. 22) it is inserted after the word for "caper", rather than after the UKUŠ-group, because of the appellation *baltu*.

In AH. 40 I suggested that this was the *Ecballium elaterium* Rich, or "squirting cucumber". This, like the Colocynth, is a drastic purge, and its Assyrian title "gum of the *pudenda* of the mountains" exactly fits it. The plant is found in maritime Syria (FP.² i, 481: LB. 459, "found all over the country" and "looks like a young squash": at Nisibin, Von Opp. ii, 377). The part used is the sediment from the juice of the fruit (P. 480); the ripe fruit, about two inches long, roundish, green, and fleshy, ejects the seeds with a mucilaginous juice (PC. xv, 312). Obviously the *hīl baltī šadī* is this juice (gum), which at once allays any doubt that there might have been about this being the *Elaterium*, and not merely a "mountain" variety of the ^{am}UKUŠ-TI-GIL-LA. The title "gum of the pudenda of the mountains" is allied to the Arab. name for the *Ecballium*, *qiththā al-ḥimār* "donkey's cucumber", the lasciviousness of the donkey, the shape of the *Ecballium*, and the word "cucumber" combining to give us its meaning.

Its equivalent ŠĀ-KŪR-RA, "stomach (heart) enemy" is paralleled by *aiab akalē^{nt}*, in reference to its purging property, and contrasted with ŠĀ-HUL-LA, "stomach (heart) comfort" of fennel (*šammu šā šam-rum* in Langdon, RA. 1916, 31), which is antispasmodic in infantile colic (P. 540), similar to aniseed (another umbellifer), corrective of scammony, HD. 8.

In MT. ^{am}ti-gi-lat šadī(i) occurs, among more than forty drugs, to be drunk for strangury, AM. 59, 1, 36.

Melons

It is a curious point that we know little about the Assyrian words for this very common fruit. Scheil, however, points out that the following text of the Ur period may contain the names for some of these (RA. 1921, 56, 22 ff.).

UKUŠ-A DUG
 UKUŠ-A
 UKUŠ-A AN-
 UKUŠ-A
 UKUŠ-A

IV

VICIÆ (VETCHES) AND CEREALS

VICIÆ (VETCHES) AND CEREALS

- A. 1. *šam*arušu, a vetch.
 2. *šam*amu(š)šu, *Phaseolus maximus*, vetches.
 3. *šam*ezizu, *Lathyrus*.
 4. *šam*andahšum, *Ervum lens* L. (?), lentils (?).

(A) VAT. 9000: CT. xxxvii, 29, 108860, ii, 25-32:

<i>šam</i> ha-tir(!) ¹ -ti eqli	<i>šam</i> a-ru-šu
<i>šam</i> a-ru-šu	<i>šam</i> a-mu-uš-šu
2 <i>šam</i> a-mu-uš-šu	<i>šam</i> šu-un-'
3 <i>šam</i> ,,	<i>šam</i> e-zi-zu
<i>šam</i> e-zi-z[u]	<i>šam</i> a-ṛ[u-š]u m[ar-ru]
<i>šam</i> ku-ni-[bu]	<i>šam</i>
<i>šam</i> HAL-LA-MAŠ-(DÀ)	.....
<i>šam</i> KAK-KU-[UŠ] ⁴	[<i>šam</i>]kak-k[u-u (?) ⁵]
<i>šam</i> ,, TUR-[RA]	<i>šam</i> ša-te-.....

(B) Pl. 24, K. 4412, r. 20:

[<i>šam</i> HAL-LA-MAŠ-DÀ]	<i>šam</i> hal-la-ar ša-bi-[ti]
[<i>šam</i> KAK-KU-UŠ ⁴]	<i>šam</i> kak-ku-[u (?) ⁵]
[<i>šam</i> ,, TUR-RA]	<i>šam</i> ša-ta-.....

(C) Mat. 86, vii-ix:

19. ŠÈ-ḪUŠ-A-ŠAR ⁶	iz-zu lap-ti	zi-im-zi-me
20. ŠÈ-ḪUŠ-A-ŠAR	ú-ru-ti (!)	šu-un-'
21. ŠÈ-RIM-ŠAR	a-muš-šú	ku-ni-ib-ḫ[u]
22. ŠÈ-ŠIS-ŠAR	a-za-nu	ḫa-ni[n (?)]-... .
23. ŠÈ-DU ₁₃ -ŠAR	an-daḫ-šú	an-daḫ-[šum]
24. a-muš-šú ŠAR	e-zi-zu	a-ru-šú

¹ Actually *saḫ*.

² 108860, for this line *šam*ditto | *š*[am]...

³ 108860 omits line, and has for the remainder:

<i>šam</i> zir la-bi-ši	<i>šam</i>
<i>šam</i> ku-ni-bu	<i>šam</i> ku-[ni-ib-ḫu]
<i>šam</i> a-uš-še	<i>šam</i> GÚ-.....
<i>šam</i> KAK-UŠ (?)	<i>šam</i> kak-ku-[u(?)]
<i>šam</i> KAK-UŠ-TUR-R[A]	<i>šam</i> ša-ta-.....

⁴ [uš] from 108860 in n. 3, and p. 92.

⁵ [u] from p. 95, but not certain. I have taken it as a parallel to ŠE-GÚ, *kak-ku-u*. [But cf. CT. xxxv, 3, l. 15 (dupl. Yale Syllab.), and the "stone" discussed in DACG. 180 f.]

⁶ Cf. Pl. 4, ix, 35, ŠÈ-ḪUŠ-A-ŠA[R] =

(D) Pl. 29, S. 387:

.....
.....	nu-.....
.....	a-z[a(?) -nu]
.....	a-za-[nu]
.....	an-daḥ-[šum]
5.	an-daḥ-[šum]
.....	an-daḥ-[šum]
.....	ŠAG-ŠUR: kar-[šum ŠAR]
.....	kar-šum ŠAR: kar-[šu ŠAR]
.....	ši-iḥ-ḥi-r[um] ¹
10.	[p]ár-ra': kiš-[še-nu (?)]

(followed by the nuḥurtu-group).

(E) Pl. 25, K. 4398, r. 3-14: Pl. 24, K. 4412, r. 10-19:

.....
.....	šamku-ni-bu
.....	šamku-ni-ib-ḥu
5.	šame-zi-zu
.....	šame-zi-zu
.....	šam „ 3

.....
.....	e-zi-zu
.....	e-zi-iš-šu
.....	„ 6
.....	„ 6
.....	e-zi-iz-zu
.....	šamšu-nu
.....	šame-na-nu
.....	a-ḥu-šum

¹ From Pl. 31, K. 4581, r., b, (1) ... | zi-bu-u, (2) ... ši-iḥ-ḥi-ru, followed by the nuḥurtu-group.² Or perhaps šamme uš-še.³ K. 4412, šame-z[i-zu].⁴ K. 4412 omits this line.⁵ K. 4412 adds ŠAR.⁶ K. 4412, e-zi-iš-... .⁷ Or perhaps šamme uš-še.

(F) *Pl.* 28, K. 4345, vi-v, 19-31 : part dup. *Pl.* 24, K. 4412, viii-vii, 1-9 : *Pl.* 25, K. 4398, r. 1-2 :

	<i>šam</i> a-tir-ti eqli	<i>šam</i> a-ru-šu
20.	¹ ŠÈ-AŠ-ME-ŠAR	hu-ru-uš-šum
	² ŠÈ-BAR-ŠAR	"
	<i>šam</i> e-zì-zu	<i>šam</i> a-ru-šu
	<i>šam</i> a-ru-šu ³	mar-ru
	² <i>šam</i> a-ru-šu	<i>šam</i> a-ru-šu
25.	<i>šam</i> u-ru-še	<i>šam</i> a-mu-šu
	⁴ <i>šam</i> ŠÈ-RIM	<i>šam</i> a-mu-šu
	<i>šam</i> zîr ⁵ la-bi-še	<i>šam</i> a-mu-šu
	² <i>šam</i> a-mu-šu	<i>šam</i> šu-nu-u
	² <i>šam</i> ŠÈ-KUR-ŠAR	⁶ a-uš-šu
30.	² A-RIM-ŠAR	⁶ a-uš-šu
	⁷ [<i>šam</i> zî]r la-bi-še	<i>šam</i> ka-za-bu

These groups are of the Viciæ and related plants, differing in some measure from the following section of cereals.

1-4. *šam*Atirti eqli (probably the same as the form *šam*ḥatirti eqli, with a curiously scientific use of ḥ to represent ' . This "atirti of the field" must be the Arabic 'oḡur, 'iir, *Lathyrus*, as Holma (KB. 59) saw, which occurs as *L. hirsutus* L. at Qala'ah Sherghat (Herzfeld, *Beih.* ii, 33). It is true that in another connection (*p.* 149) *šam*atirtu has the value of *Euphorbia*, but here, of course, it must mean one of the vetches.

*šam*Arušu, equivalent to the above, is amplified by the word maru "bitter" when equated with *šam*ezizu (*ezišsu* elsewhere), and is defined as "a bean-like ḥi-šar" (a comparison also made of *šam*zibānu). It may perhaps be referred to the root erēšu "to wish", erišu "bridegroom", Arab. 'arš (from its clinging capacity ?; the Arab. 'arīš is a dialect word for a vine, *FP.*² i, 283), *Beih.* ii, 32, giving eršeḥ for *convulvulus*. ašābi' al-'arūs is the milk-vetch (*FP.*² i, 373).

*šam*Ezizu (*ezišsu*) must be the Syr. 'āšōša, *Lathyrus* (*FJ.* ii, 438). Note the occurrence quoted from *VM.* in (4) below. (Cf. the Arab. s'es'a (according to Miss Baldensperger, *FCH.* 46), *Lathyrus cicera* L.)

*šam*Amušu, hardly the Arab. ḥimmaš,⁸ Syr. ḥemšē "chickpeas", owing to the difficulty about the sibilant; more probably it is mās, *Phaseolus maximus* in Assyria (*A.* 35), the change of position of a being paralleled by the a in *azupiranu*, Arab. za'farān. Note the occurrences

¹ K. 4412 apparently put [*šam*a]-ru-[šu] | . . . here.

² K. 4412 omits this line.

³ K. 4412, šu.

⁴ K. 4412 changes places with next line.

⁵ Re-examined [*sic*].

⁶ Or perhaps mē uš-šu.

⁷ Not in K. 4345 as extant; it is possible (but not likely) that the line was included in Cols. viii-vii (broken away).

⁸ Although for ḥimmaš cf. ŠE . . ḥUM-ḥUM | hu-um-mu-šu, Scheil, *ZA.* 1893, 201, r. 3.

in *VM.* (Meek, *RA.* 1920, 181, S. 1701, iii-iv, 10, 11: *Pl.* 42, K. 274, iii-iv, 24-5: *Mat.* 88, ii, 9-10):

^{šam} (^{iš})a-mu-še	|	ina dām ḥab-li
^{šam} (^{iš})e-zi-zu	|	ina dām me-e-ti

"Vetches in the blood of a wounded man, chickpeas in the blood of a dead man." Unintelligible.

^mAmuše is a proper name (*ABL.* 303, 6).

^{šam}Kunibu, perhaps connected with the Arab. *kanīb* ("like *duḥn* (millet) and called *tahaf*"), Landberg, *Arabica* v, 213 (*cf.* *Getr.* 37). ^{šam}Kunib(p)ḥu might conceivably be the Syt. *ṭēlāphḥa*, lentils, if a change from *k* to *ṭ* be allowed as in Wright's *Comp. Gram.* 51, where mod. Syt. is given as pronouncing *k* as *ty* (*tyalbā* "dog"): perhaps, *cf.* *ṭṭṭqlā* = *craticula*. ^{šam}Kunib(p)ḥi ŠAR occurs in the vetch-group, *MB.* 5-8, along with *andaḥšum* ŠAR, *šašnibi* ŠAR, and *zimzimmu* ŠAR, the latter word occurring as equivalent to *SĒ-HUŠ-A-ŠAR* and *izzu lapti* (p. 89).

^{šam}Zir labiše "seed of *labiše*" must surely be the Arab. *bisillah* (*bizella*, *bishlah*, *FP.*² i, 434, 435), peas. The metathesis of *l* is not uncommon in words containing liquids.

^{šam}Auššu (I am inclined now to read it thus, and not *mē ušše* or *mē uššu*, since the Sumerian is ^{šam}SĒ-KUR-ŠAR, which has nothing to do with soup), possibly the Arab. 'adas "lentils" (on the analogy of *šiššu* from *šdš*. Ainsworth (*A.* 35) quotes *addes* (*Ervum lens*) in Assyria, but, having regard to the possibility of this being ^{šam}andaḥšum, it may be that *auššu* is merely a form of *amu(š)šu*. At the same time A-ŠAḤ (= "soup of pig") occurs (*KUB.* iv, 51, 5).

For ^{šam}šunū and ^{šam}enanu I can suggest nothing.

The ^{šam}KAK-(KU)-UŠ, *kakkū*, group is comparable to that occurring on p. 95 among the cereals, ^{šam}ŠE-GÚ (^{šam}kakkū), ^{šam}ŠE-GÚ-DU₁₃ (^{šam}kakkū), and ^{šam}kakkū (^{šam}AB(ĒS)-BA(?)) and clearly allied to the vetches. *Cf.* *VM.* *Pl.* 10, r. 9: *Mat.* 88, ii, 30):

^{iš} KAK-KU-UŠ-GAL		ina kur-mat i.neri
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i.e. it is an ass-fodder. Meek, *BA.* x, 1913, 42, K. 3251, gives a hymn in which *kun-ši ḥal-lu-ri kak-k[i-e]* (l. 9) are mentioned in relation to ^dNisaba, and alkali, salt, sulphur, . . ., *azupiri*, and cress (ll. 12, 13) in relation to ^dNE-DAR.

^{šam}ḤAL-LA MAŠ-DÀ is represented by ^{šam}ḥallar ṣabi[ti], "gazelle dung." ḤAL-LA is well known to mean "dung", but ^{šam}ḥallar appears to be unknown elsewhere. Doubtless the seeds are compared to the little spherical dung of the gazelle.

^{šam}Andaḥšum is a difficult word. In *AH.* 130, partly because of its presence near *karšu* (p. 90), which has one meaning "cherry" (p. 307), partly because of its connection with (*BI*)ṭi(hi)-i-ṭi, *supurgil* "quinces", *sirdi* "almonds", and *šamri* "jujubes" in *ADD.*¹ and partly on account

¹ *ADD.* 1003, 1005, 1007, 1009-1011, 1013, 1015, 1017-19, 1022, 1024, 1029, 1031, 1037, the group being (with variations) *karpatqa-bu-tu* (v. *ka-ZAK*) (*BI*) ṭi(hi)-i-ṭi, *karpatqa-bu-tu* (v. *qa-ZAK*) an-daḥ-še, *karpatqa-bu-tu* (v. *qa-ZAK*) su-pur (par)-gil, *karpatqa-bu-tu* (v. *qa-but*), *sir-di* and ^{iš}sa-al-lu za-am-ri.

of the possible similarity of the word with the Arab. *injās* (pears, plums), I thought it might mean "plum". But "plums" are ¹*angaše* in *ABL.* 813 (along with ²*supurgillum* "quince"; so that either we must read our word *andaḥšum* as *angabšum*, accepting this as equal to *angaše* "plums" (that is, when we find it in such texts as are in *ADD.*), or we must relinquish the meaning "plums".

There is a curious parallel in *NH.* xxii, 49 to this grouping of *andaḥše*, quinces, etc., where for certain diseases lentils are pounded either by themselves, or with quinces, pears, myrtle, wild endive, black beet, or plantago.

Next the vocabulary on p. 90 (*Pl.* 29) contained *andaḥšum* in one group, followed by the *nuḥurtu*-group, *Asa fætida*, and, since the *andaḥšum*-group contained *karšu*, it was not unreasonable to see in this the Syr. *karšā*, *Laserpitium siler*. Indeed, even *MT.* was confirmatory of this, ³*amandaḥše* being used in two prescriptions actually along with *Asa fætida* (*AM.* 81, 3, 1, *dup.* 81, 2, 4, and *AM.* 83, 1, r. 19).¹ Curiously enough, the Persian for *Asa fætida* is not dissimilar (*unguzah* = *hingiseh*), *FJ.*² iii, 452 ff.: *aṅgusta gaṇdah*, *aṅgudāna*, i.e. *hiṅga*, which appears in various Indian forms, *BMM.* 336.

Yet it is certain that the occurrence of ³*amandaḥšum* in the lists of vetches compels us to see one of this class of plants in this word. This is also evident from a ritual containing coriander, cummin, nigella, *andaḥšum*, and *ezizu* (*Lathyrus*), *KAR.* 171, 4 ff., 178, r. vi, 13; Ebeling, *MVAG.* v, 3, 1931, 26). In omen-texts, too, the order of such plants runs *SÈ-EL-ŠAR*, *ezizu ŠAR*, *andaḥšum ŠAR*, ⁴*akamunu ŠAR* (Virolleaud, *Bab.* 1910, 291, 43-6, *DA.* 77, 43-6). The word is curiously spelt ³*am-an-šum-daḥ* (*ZA.* 1923, 34), and as *in-daḥ-šu-um* as far back as the 3rd Dyn. of Ur (*ITT.* 7059), 20 mana (about 20 lb.) of it being mentioned.

It is used thus in *MT.*:

To rub on a sick "place" alone, Scheil, *RA.* 1918, 75, 4. To insert in uterus of pregnant woman, † (or after childbirth), *KAR.* 195, 10. For cough, with bloodspitting, drink mustard, *Asa fætida*, etc., in *kurunnu*-beer, and then eat *andaḥše* with honey and *ḫimetu*-ghee, *AM.* 83, 1, r. 19: for cough, eat ³*amandaḥše* with *Asa fætida*, *AM.* 81, 3, 1, *dup.* 81, 2, 4: for cough (when no improvement is obvious) *KAR.* 203, iv-vi, 33 (alone in honey, oil, and *kurunnu*-beer, let his tongue take without a meal,² let him drink). For *šiki* alone, bray, drink in *kurunnu*-beer, *ib.* 41.

What is most interesting is that there was a festival celebrated about it by the Hittites in the spring (I owe this to Mr. Oliver Gurney): *KUB.* x, 198, 18, i, 2: xx, 42, 1, 9: "he (?) puts *andaḥšum* in the house of the queen," and "there is a big assembly in the house of the queen": *ib.* x, 94: 2-3: "when the time of the *andaḥšum* comes, they will offer the *andaḥšum* to the gods," *ib.* xviii, 12, i, 3-4. It follows *BULUG-an* and *ti-ia-ti* (*Asa fætida*) in a list of vegetables, *ib.* vii, 1, i, 21.

Asa fætida may well have been used as an addition to lentil pottage, or however it was cooked: Pliny (*NH.* xxii, 49) says of the *Laser* that

¹ A form *andaše* (1 shekel) occurs along with *tiātu* (1 shekel) and honey (San Niccolò-Untgnad, *Neubabyl. Rechtsurk.* No. 858, *VAT.* 2042, late Bab.).

[² See *RA.* XL, 109 f.]

"taken with food, it is very refreshing for patients just recovering from an illness"; "employed by itself, it warms and revives persons benumbed with cold." *Asa foetida* is "very serviceable in imperfect digestion . . . the Romans employed it along with their food, as the Persians still do" (PC. ii, 493). As lentils according to NH. xxii, 70, "inflate the stomach," the use of *Asa foetida* is obvious. On the use of it in food, see FJ. iii, 453.

B. LU-ÚB-ŠAR, *lubbu* (*luppu*), *Phaseolus vulgaris* L., bean.

Gadd, CT. xxxv, 4, 54:

ub | ÚB | šá LU-UB *lu-ub-bu*

(Cf. Clay, YOS. i, pl. xlv, 151.) Cf. also CT. xi, 35, 76-4-13, i, 8: v. SAI. 8214:

[LU-ÚB-ŠAR] | ú-du-tu-kul-ni-si-gu-u | ?

In KAR. 203, r. iv-vi, 39, ^{3am}LU-ÚB-ŠAR = ^{3am}zu (or *eri*)-lu-SAR = šá *uzna*ⁿ-šú *maršá* NU *ikkal* ("one whose ears are sick shall not eat").

In AH. 196 I suggested that this word represents the Arab. *lūbiyā*, *lūbā*, *Dolichos lubia* Forsk. (FJ. ii, 508: Lane, *Dict.* 2677, *faba*, not the *lūbiyā ifranjīyah*, haricot, which comes from South America, but the *Vigna savi* D., FJ.² ii, 522). We find that it is a vetch: Pl. 25, r. viii-vi, 8, LU-ÚB ša *kima* ĦI-ŠAR = *e-zi-iš-su*, similar to the equation [LU]-ÚB-ŠAR *kima* ĦI-ŠAR = ^{3am}zi-bi-ba-nu, Pl. 19, i-ii, 13 (^{3am}zibibanu occurring, p. 70, as *Nigella*). ĦI-ŠAR is unexplained in the syllabaries. Cf. also LU-ÚB-ŠAR *ár-ma-nim* MUN-KÜ-PAD *šêr kaliti ka* . . . "beans, apricots, borax (?), kidney meat . . .", for a man bewitched, which suggests a haricot (AM. 85, 3, 7), as is often cooked in the East, with raisins, etc. Elsewhere in MT. (AM. 80, 1, 8): "When a man is sick of a cough, thou shalt cook green arnoglossum (alone) *kima* LU-ÚB-ŠAR (like beans)," showing obviously that these beans were a well-known food. Kū. i, iii, 57, gives . . . *na-pi-iḥ-ma ki-ma lu-up-pi* . . .

Bean-flour, ZID *lub-ba* (AM. 74, 1, ii, 35), to be sprinkled with oil, is to be put on an affected place: Pliny (NH. xxii, 69) says that bean-meal boiled in vinegar ripens tumours and breaks them, and heals contusions and burns.

Zîr LU-ÚB-ŠAR occurs in a vocabulary of the 3rd Dynasty of Ur (Scheil, RA. 1921, 60, vi, 31), as well as a vessel for them (*ib.* 57, 11). Indeed, it is possible that "40 GÚ (talents) of LU-ŠAR" (an eatable vegetable) is to be assigned here (Thureau-Dangin, ISA. 123, 21, Gudea; and cf. RTC. No. 58, iii, 11, etc., ^{3am}LU-ŠAR).

In omens: "If a river *kima* LU-ÚB-ŠAR, there will be *aḥḥazu*-(demon) in the land" (Gadd, CT. xxxix, pl. 14, 8). The preceding omen describes the possibility of the river being SIG₇-SIG₇ "bright yellow", so that the comparison with beans probably means that it is of a dark green.

C. The še, (corn)-group.

(A) *Pl.* 31, K. 8846, r. 1-9, dup. *Pl.* 32, K. 4588, iii¹: Smith, *CT.* xxxvii, No. 108860, 29, 35: *VAT.* 9000: (cf. Scheil, *RA.* 1921, 56, "Epoch of Ur"):

(a)	3 <i>šam</i> ŠE — BAR	<i>šam</i> ut-ta-tu
(b)	3 <i>šam</i> ŠE — GIG	<i>šam</i> ki-ba-tu
(c)	5 <i>šam</i> ŠE ⁴ -BA-RA	<i>šam</i> šu —
(d)	8 <i>šam</i> ŠE ⁶ -GÚ-ŠÁ-ĤAR-RA	<i>šam</i> kiš-še ⁷ -nu
(e)	<i>šam</i> ŠE ⁶ — GÚ	<i>šam</i> kak-ku-u
(f)	9 <i>šam</i> ŠE ⁶ -GÚ — DU ¹³	<i>šam</i>
(g)	<i>šam</i> ¹⁰ kak — ku — u	<i>šam</i> AB(ÈŠ) — BA (?)
(h)	11 [ŠE]-GÚ-GAL	<i>šam</i> [hal]-lu-ru
(i)	12 [<i>šam</i> Š]E ab(èš)-šú-man-na-gu	<i>šam</i> [al]-la-an-gu
(j)	13 [<i>šam</i> Š]E lal-la-an-gu	<i>šam</i> el-me-ru ¹⁴
(k)	15 <i>šam</i> ŠE — ŠIŠ	<i>šam</i> [el — m]e — su
	.....¹⁶	.....¹⁷
(l)	<i>šam</i> ŠE-KUD-DA	<i>šam</i> (gul(?) -bu(?)) -tu
(m)	<i>šam</i> ŠE ár ¹⁸ -zik	<i>šam</i> [dah] — nu
(o)	<i>šam</i> ŠE-LI-A	<i>šam</i> [ku-ra-an]-gu
(p)	19 <i>šam</i> ŠE-IN-NU-ĤA	<i>šam</i> [in-ni]-nu

¹ Perhaps here, as the beginning, *Pl.* 38, K. 424, B, i-ii, 14-15:

.....	<i>šam</i> šu —
.....	<i>šam</i> šu —

Cf. also *CT.* xix, 39, K. 9964, 1-7:

.....
.. [Š]E — GUD	.....
.. [Š]E-LUGAL	<i>šam</i> [il-la-nu] (?)
[ŠE-IN]-NU-ĤA	.....
[ŠE]-GÚ-NUNUZ	<i>šam</i> [gul-bu-tu]
[ŠE]-A-ŠÁ-GA	ŠE in-ni[<i>u</i>]
[ŠE-I]-N-NU-ĤA	ŠE in-ni-[<i>nu</i>]

² Horizontal line on 108860 and *VAT.* 9000.

³ Line omitted on *VAT.* 9000.

⁴ *VAT.* 9000 omits.

⁵ *VAT.* 9000 inserts *l.* (h) here, reading:

<i>šam</i> GÚ-GAL		<i>šam</i> hi-lu (?) -r[<i>u</i> (?)]
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K. 4588 has:

[<i>šam</i>]ba- ¹ -[ra]	
<i>šam</i> GÚ-.....	
<i>šam</i> GÚ-[NIGIN] (?) (or DU ?)	

No. 108860 has:

<i>šam</i> ŠE ba- ¹ -ra		<i>šam</i> ditto
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⁶ *VAT.* 9000 and K. 4588 omit.

⁷ *VAT.* 9000 š[i] (?).

⁸ *VAT.* 9000 adds:

<i>šam</i> GÚ-NIGIN (?) (or DU ?)		<i>šam</i> „ (= kiš-š[i] (?)-nu (?)).
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⁹ *VAT.* 9000 adds:

<i>šam</i> „ (= GÚ-DU ¹³)		<i>šam</i> [al]-an-gu
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¹⁰ K. 4588 presumably reverses this:

<i>šam</i> AB(ÈŠ)-[BA (?)		<i>šam</i> kak-ku-u]
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VAT. 9000 omits the line.

¹¹⁻²⁰ See page 96.

(B) Pinches, *JRAS.* 1905, 830, ll. 9-16:

<i>e-zi-nu</i>	ŠE-TIR	<i>še-e-tir-ru-ù</i>	^a <i>Aš-na-an</i>
<i>hi-en-bur</i>	ŠE-RÚ	„ - <i>gaq-ga-ak-ku</i>	<i>hab-bu-ru</i>
<i>kid-la-an</i>	ŠE-LUGAL	„ - <i>lugal-la-ku</i>	<i>kid-la-nu</i>
ŠE-ŠAG	ŠE-LUGAL	„ „ „	<i>ia-a-ra-ah-hu</i>
ŠE-EŠ-TU-UB	ŠE-GUD	„ - <i>gu-ud-da-ku</i>	<i>ar-su-up-pu</i>
ŠE-MU-UŠ	ŠE-ŠIŠ	„ - <i>si-is-sa-ak-ku</i>	<i>ši-gu-šú</i>
ŠE-ZA-AH	ŠE-BIL	„ - <i>i-ra-ak-ku</i>	<i>lu-u-tum</i>
ŠE-ŠÁ-AL	ŠE-ŠAL	„ - <i>sa-al-la-ak-ku</i>	<i>di-il-la-tum</i>

(C) Scheil, *RA.* 1921, 56 (text 59) ("Epoch of Ur"): v, 1-16, has (1) [ŠE-GÚ]-GAL, (2) [ŠE-GÚ]-DU₁₃, (3) [ŠE]-IN-NU-ĤA, (4) [ŠE]-LI-BAR (= A ?), (5) [ŠE]-...-AN, (6) [ŠE]-LU-SA(?)-AN, (7) [ŠE] *ha-[lu]-ru*, (8) [ŠE]-HI...-li-ku, (9) [ŠE]...-ru, [10] [ŠE]-GUD, (11) [ŠE]-LUGAL (probably), (12) [ŠE-KUD(?)]-DU, (13) [ŠE-LI(?)]-A, (14) [ŠE]...UR, (15) [ŠE-GÚ-ŠÁ-ĤAR]-RA, (16) [ŠE-A-ŠÁ]-GA...

Ainsworth (*A.* 34) begins his list of Mesopotamian food-plants with wheat (*houta*), barley (*shaéir*), lentils (*Ervum lens*, *addes*), chick-peas (*Cicer arietanum*, *himmes*), beans (*Vicia faba*, *túl*), chickling vetch (*Lathyrus sativus*, *jilban*), vetch (*Vicia nissoliana*, *kishné*), beans (*Phaseolus maximus*, *maāsh*), and millet (*Holchus sorghum*, *dúra*). Some of these we can identify in the foregoing lists, and others in the section on Vetches (*p.* 89 *f.*) (one at least of the Arabic words as he gives them looks like a misprint). *FP.*² i, 416-436, gives various vetches, *etc.*, in Syria and Palestine as *Cicer arietinum* L. (*himmaš*), *Vicia faba* L., *F. vulgaris* Mill. (*fúl*), *V. palæstina* Boiss. (*karsanah-barrî*), *V. Ervilia* (L.) Willd. (*karsanah*), *Lens esculenta* ('*adas*'), *L. sativus* L. (*julbān*), *Pisum* (*bisillah*), *Phaseolus vulgaris* L. (*lūbiyā ifranjīyah*), *fasūlia*, *P. arvense* Post (*māsh*), *Vigna* (*lūbiyā*).

Hrozný (*Getr.*) discusses wheat, barley, and other kinds of grain fully (*cf.* also *FJ.* i, 707 *ff.*). The Assyrians have included some of the

¹¹ *VAT.* 9000 puts this line (as in ⁶ above) between ll. (c) and (d). K. 4588 and K. 8846 have *šam*GÚ-[GAL(?)]....

¹² *VAT.* 9000 omits the line: K. 4588, *šam*ab(ēš)-šū-m[a]-...: K. 8846, *šam*ab(ēš)-šū-an-.

¹³ *VAT.* 9000 omits *la*: K. 8846 has *šam*lal-la-an...

¹⁴ *VAT.* 9000 has either *su* or, less probably, *tu*. For *šam*[el-m]e-su in the next line *VAT.* 9000 has „.

¹⁵ K. 4588 apparently ends this section here.

¹⁶ *VAT.* 9000 has for this line:

*šam*ŠE — GUD | *šam* „ (= *el-me-su* (?))

which is then followed by:

<i>šam</i> ŠAR(?) - A-ŠÁ(?)	<i>šam</i> [„]
<i>šam</i> ŠE <i>ar-zik</i>	<i>šam</i> dāb-[nu]
<i>šam</i> ŠE-LI-A	<i>šam</i> ku-ra-an-g[u]
<i>šam</i> ŠE- (uncertain traces)	<i>šam</i> gul-bu-tú
<i>šam</i> ŠE-IN-NU-ĤA	<i>šam</i> in-ni-nu
<i>šam</i> GÚ-NUNUZ	<i>šam</i> gul-bu-tú

¹⁷ Restoration uncertain.

¹⁸ K. 8846, *ar.*

¹⁹ K. 8846 adds *šam*BA-[RA] | below this line.

²⁰ No line on K. 8846.

Viciæ with corn and barley in their lists, and yet elsewhere there is a separate section for *Cicer*, chickpeas, and *Lens* (lentils). It will be best to discuss both groups together.

(a) *The Corn-lists (including some of the Vetches).*

1. ŠE, either "corn", i.e. the simple grain used as a measure (OTC. 128: *Iraq* 1938, 26), or as the equivalent of še'u (*D.* 367, 14), and in general as a determinative for corn of all kinds (see *Getr.* 207). Langdon (*JRAS.* 1936, 87) published a tablet mentioning ŠE, zíz, and GIG, which he made barley, emmer, and wheat respectively. On *kunašu* as emmer see *Getr.* refs. on p. 204, and *AF.* 107. On ^aAŠ(áš)-na-an = ^aŠE-TIR see Deimel, *Panth.* 289, and the literature in *MA.* 116: šī-kar aš-na-an, King, *Magic*, No. 2, 29.

ZID-ŠE "flour of corn", corn-flour, *Getr.* 117: used in a fumigation in *MT.* alone, *AM.* 101, 3, 10 (ZID-ŠE¹ in a parallel passage, *ib.* l. 16)¹: for lungs, in a fumigation with pine-turpentine (with a thorn-fire, *AM.* 54, 1, 8. Cf. also *AM.* 65, 5, 8, to mix in wine for head, and note the peculiar " $\frac{1}{2}$ qa ZID-ŠE damqi" (sweet corn-flour), *AM.* 77, 5, 6 (uncertain use). There is a special mill for ZID-ŠE, i.e. in the time of the 1st Dyn. of Babylon, ^{aban}HAR ZID-ŠE, *CT.* viii, 34, 91-5-9, 2504, 10.

Include here:—

(a) ZID-QU, qīmu ḥašlu ("zerstossenes Mehl", "feiner zerstossenes Mehl," *Getr.* 117). It is the pounded wheat which the Arabs use. *LB.* 94 speaks of an Arab who "is braying wheat with a pestle in a mortar to make kibby, the national dish of the Arabs. . . . Every family has one or more of these large stone mortars . . . our boy is busy braying fish . . . and we shall therefore have kibbet samak, which many people are extremely fond of. It is more commonly made of mutton". Although the Heb. qēmāḥ is applied to flour of wheat, barley, and parched corn (Briggs-Driver, *Dict.* 887), the vulgar Arabic qamḥ means wheat (*ib.*). The pounded corn (ZID-QU) is, of course, not the same as the properly ground corn (and therefore my translation "fine-ground flour" is probably to be emended to "pounded flour"): the two would appear to be used together (as ZID-QU and ZID-GIG) in the same prescription (see below).

ZID-QU is common in *MT.*:

Temples, †, bind, *CT.* xxiii, 41, 3 (cf. 4, poultice). *Eyes*, †, mix as medium [ext.], *AM.* 9, 1, 9. *Ears*, †, as medium, insert, *AM.* 36, 1, 6. *Stomach*, mix liquorice with ZID-QU, uncertain use in rose-water, *AM.* 39, 1, 1. *Breast*, †, uncertain use, *AM.* 51, 12, 7. *Cough*, †, uncertain use, *AM.* 80, 1, 20. Prob. *anus*, with salt, "reduce," bray, and apply, *KAR.* 191, r. iv, 7. Blains (šiggati) with RIM (v. ZID) ŠE + BAR + ŠE, ZID-ZIG, etc., poultice, *AM.* 32, 5, 10, dup. 93, 2, r. 3. *Swelling*, †, as medium, poultice or bind on, *AM.* 73, 1, 19-23, 27: 74, 1, 12. Blow (mišitti), †, *AM.* 79, 1, 14. Poultice with ḥalluru, kakku, etc., *AM.* 84, 4, r. iv, 5.

Quantities: 10 carats, †, bind on, *CT.* xxiii, 42, 8: $\frac{1}{3}$ qa, *AM.* 6, 3, 9.

(b) ZID ^aNisaba "corn-flour", for kurara (itch) in head, bray and rub (takar) alone, *AM.* 5, 5, 5. Cf. *AM.* 65, 5, 2 (and possibly 5, 5, 7 and 8, 4, 1).

¹ Presumably this does not refer to ^aŠE-NÁ-A (Vitex), with which the patient is to be bathed immediately preceding the fumigation.

(c) ZID A-TER (= *šasqu*), with dates in a ritual, *AM.* 44, 4, 9 ("Anfeuchtungsmehl", *Getr.* 118; see Thureau-Dangin, *RA.* 1924, 136, n. 8). Common in rituals.

(d) ŠE-SA-A (*qalû*), Heb. *qālî* (see Zimmern, *ZDMG.* 1904 (lviii), 951: *Getr.* 98). Confirmed from *AM.* 36, 1, 7 (cf. 38, 4, ii, 3) *kasi šAR ki-ma šE-SA-A ta-qal-lu* "roses like *qalû* thou shalt parch". Equally cf. *CT.* xxiii, 10, 16 ff.: "as a dead man hath not passed the gate of life, as an untimely birth hath not sucked the breast of its mother, *kima zîr šE-SA-A la ib-nu-u šE-RÚ*, as the seed of *qalû* hath not produced a shoot." It is the well-known "parched corn" of Ruth ii, 14: "and she (Ruth) sat beside the reapers: and he (Boaz) reached her parched corn and she did eat." It is described in Robinson's *Researches* ii, 350: "In the season of harvest,¹ the grains of wheat, not yet fully dry and hard, are roasted in a pan, or on an iron plate, and constitute a very palatable article of food; this is eaten along with bread, or instead of it." In Palestine (*The Bible in Palestine* quoted in *Scripture Manners*, 138, 7, 8) "they took a bundle [of corn] green from the field, and held it over a blazing wood-fire, till it was quite black. They then rubbed it out with their hands into a dish, and ate it warm, and frequently they had little else for a meal—at least in the early part of the day. . . . The use of parched corn is now so common, that in summer it is regularly sold in the markets."

It is common in *MT.*:—

(1) *Simply*: *Temples*, 10 shekels of cress and 10 of ŠE-SA-A steep in rose-water, bind on, *AM.* 20, 1, 19. *Swelling* on heel, †, bray, poultice, *AM.* 73, 1, 19. For *šibir mišitti* (some kind of blow), †, in beer . . . [bind], *AM.* 82, 2, 9. In ritual, mention of pouring water on ŠE-SA-A, *KAR.* 21, r. 14.

(2) ZID, flour: *Ext.*: *Temples*, 10 shekels, †, steep in rose-water and bind on, *AM.* 20, 1, 20, no quantity given, †, ditto, *CT.* xxiii, 43, 25, 27. *Eyes*, †, steep in beer, bind on, *AM.* 14, 1, 7: 16, 1, 1: as medium for mixing, *AM.* 13, 1, 5. *Scabies* on head (or sim.), † [prob. bind on], *AM.* 1, 2, 19. Blow (*mišitti*), as medium for mixing, poultice, *AM.* 79, 1, 25.

Int.: Female ailment (*šAL-LA RA-AH*, flooding or slipping of the uterus), drink with *šammastakal* (soapwort) in oil and beer, *AM.* 67, 1, iv, 5, dup. *KAR.* 196, r. 1, 12.

Enema, †, *AM.* 94, 2, 1, 8.

In ritual, alone in water and beer beat up (*PA-aš*), and pour on roof, *KAR.* 184, r. 7. ZID-ŠE-SA occurs in time of Shulgi (Nakahara, *Sum. Tablets*, p. 5, ll. 2, 8: cf. *TURK.* 23).

(For ŠE-SA in composition with other grain see *D.* 367, 83).

(e) IN-RI, *iltum*, straw, †, *AM.* 34, 6, 1 (probl. ext. or as fumigation).

2. *šamšū*, according to *Getr.* 89, is an Assyrian word for emmer, mentioned frequently alongside sesame and *kullani* in Assyria (in *ADD*, see *Getr.*, l.c.). In regard to ŠE-GIG-(BA) and ŠE-BAR, he points out (*ib.* 8) that ŠE-GIG-BA is represented by the Aram. *hīnīn* "wheat" (Delaporte,

¹ The barley-harvest at Hit is about 14th May, and the wheat-harvest about the 25th; at Anah the wheat-harvest is about June 8 (Olivier, 6, 316, 323).

Epig. Aram. 86), and that ŠE-BAR = *s'ārîn* "barley"¹ (Clay, *O.T. and Semitic Studies* i, 301: Landsberger, *Vienna Or. Journ.* 1912, 121).

It is, therefore, not entirely certain whether we should read *uṭṭatu*, the Arab. *hintah*, or *uddatu* from *edēdu* "be sharp" (i.e. spiky), the barley.²

(3) ŠE-GIG, wheat, occurs thus in *MT.* :—

(1) *Simply*: 7 ŠE (grains) in ritual, *AM.* 91, 4, 10.

(2) ZID (flour) of GIG(-BA) (common); *Ext.* always: *Head* (Hand of Ghost), †, poultice, *AM.* 93, 1, 15. [*Loins* (?)], †, poultice, *AM.* 51, 8, 6. [*Mouth* (?)], †, uncertain use, *AM.* 24, 1, 2. *Cough*, †, bind on 15 days (*u* ZID GIG, re-exd.), *AM.* 50, 3, 4. Blains (*šiggati*), alongside RIM ŠE + BAR + ŠE and ZID QU, †, in poultice, *AM.* 32, 5, 10, dup. 93, 2, 3. Bruise (*dikši*), bandage (poultice), †, *AM.* 96, 1, 8, 15. Blow (*mišitti*), †, poultice, *AM.* 79, 1, 7.

Quantity: 1 *qa*, *AM.* 45, 4, 3: 56, 3, 2. $\frac{1}{2}$ *qa*, *AM.* 55, 1, 11: 63, 6, 7: 10 carats, †, temples, bind, *CT.* xxiii, 42, 9.

KI-KAL (KANKAL) ZID GIG: *AM.* 53, 1, iv, 6.

ŠÁ-ĦAR-RA GIG-BA (wheaten bread), $\frac{1}{2}$ *qa*, *AM.* 42, 2, 4.

A curious parallel to *GE.* xi, 87, *ušaznannu šamutu kibati*, occurs in Virolleaud, *L'Astrologie Chald.* Adad xii, 15, "if Adad thunders in the middle of the Waggon-Star and ŠE-GIG *izanun(nun)*, etc."

4. ŠE-BAR, apart from its meaning "barley" can represent "corn" (*Getr.*, s.v.). The flour (ZID) of ŠE-BAR occurs alongside LA *ša-bi-tu*, to be fried in a *rimute* (*AM.* 11, 2, 39), and ZID ŠE-BAR *damqu*, †, *KAR.* 266, 14. ŠE-BAR (barley), as Thureau-Dangin points out (*RS.* 1909, 88), was the commonest grain cultivated in late Bab. times.

ŠE-PAT is another group for barley (*Getr.* 4, 87 ff.), but one not occurring in *MT.* *HC.* 28, 166 gives ŠE-PAT³ as the word for grain of a captured people.

5. ŠE + BAR + ŠE³ is the commonest of all cereals in *MT.*, occurring some forty or fifty times, more often than wheat or emmer, and it has a large number of complementary additions descriptive of its products or parts, so that it must be a very common grain. It is, in point of fact, only the ordinary ŠE-BAR "barley"⁴ with ŠE attached, which, I suggest, may have been due to the intention of the scribes to make it quite definite that "barley" and not "grain" in general was intended. Küchler properly suggested "Gerste" (*Kü.* 154, followed by Hrozný, *Anzeig. d. Kaiserl. Ak. d. Wiss., Phil.-Histor.*, 1910, v, 28); "Malz," however, was subsequently accepted as a meaning (*Getr.* 106), which is impossible in such an association as *HC.* 134 and 226 (where Thureau-Dangin translates it thus): the reference is to the winnowing of simple barley (*kima* ŠE ŠE + BAR + ŠE *ašdi* (or *aštadi*⁵), "like the grain of ŠE-BAR-ŠE I

¹ On the form *še'urtu*, barley, see Landsberger, l.c.

² What is *I imer im-ma-te*, *KAV.* 197, rs. 46? For AR-ZA-NA, *arsanu* as the equivalent of Talm. 'arsân, barley groats, see *Getr.* 105. [In the *Journal of Near Eastern Studies*, v, 207 f., it is shown that the Akkad. reading of ŠE as a measure was probably *uṭṭetum*.]

³ I was wrong in *AH.* 203 in identifying it with millet, which is *duḥnu* (see *RA.* 1929, 51, where I altered my opinion to barley, in spite of the "Malz" which found favour). Malt is, of course, "barley softened in water, then exposed to moderate heat until incipient germination ensues, and afterwards kiln-dried, to destroy the vitality of the seeds" (*EC.* 776).

⁴ ŠE-BAR occurs in *MT.* in ZID ŠE-BAR, for eyes, †, *AM.* ii, 2, 39.

⁵ *Syt.* *š'dhd*, "toss."

tossed," as a simile of the destruction of warriors). So also Esarhaddon (*PE.* iv, 70). The threshing of barley was thus a usual simile in Assyrian literature: *cf.* also Weidner, *KBo.* i, r. 61, quoted by Sidney Smith, *RA.* 1925, 67): "May the gods, lords of the oath, destroy you *kima* ŠE + BAR + ŠE *ištu eltešu išattaddukunši* (drawing you like barley from its husk)."

Bread from ŠE + BAR + ŠE was a usual food, *e.g.* in the *viaticum* of the *Lamaštu*-demon, after she has been given clothes, a spindle, *etc.*: ŠÁ-ĤAR-RA ŠE ŠE + BAR + ŠE ŠIM + GAR ŠE-SA-A ŠÁ-UD-DA (iv, *R.* 55, 1, r. 29, Myhrman, *ZA.* 1902, 192), which is almost similarly repeated in iv, *R.* 56, r. 55 *ff.*, Myhrman, *ib.* 163, where, after she has been urged to "set her face to the desert", and her oil for her anointing has been prepared, along with her sandals and her water-bottle, the suppliant prays that her scrip may be filled with ŠÁ-ĤAR-RA ŠE ŠE + BAR + ŠE ŠE ŠIM + GAR ŠÁ-ĤAR-RA. ŠÁ-ĤAR-RA means, of course, bread cooked in the ashes. The same idea of a *viaticum* made of ŠE + BAR + ŠE occurs in *Bab. Mag.* No. 53, r. 3, ZID ŠE + BAR + ŠE *e-siḥ-šú* GAR *ḥarrani liddin-šú*. Barley-bread is, of course, a common fare in the Near East to-day (Hauran, Mesopotamia, see *FJ.* i, 715).

ŠE + BAR + ŠE occurs thus in *MT.* :—

(1) ZID, flour: on (in) *tooth* (mouth) alone, *i-sa-ib*, *AM.* 21, 7, 4. *Swelling*: †, as medium for [poultice], *AM.* 18, 5, 8. "Poison," poultice, †, *AM.* 92, 4, r. 5. *Blains* (*šiggati*), †, poultice, *AM.* 93, 2, r. 1, and preceding "wheat-flour", *ib.* 3.

Quantity: $\frac{1}{2}$ qa, †, with cress, flour of chick-peas, *etc.*, bind on feet (?) and neck-muscle, *AM.* 15, 3, 18. 10 shekels, †, bind on head, *CT.* xxiii, 33, 12. *Stomachic*, $\frac{1}{2}$ qa, †, bind on in rose-water, *Kü.* ii, i, 11. *Lungs*, †, prob. *ext.*, *AM.* 35, 1, 11 (preceding "wheat-flour").

(2) SAḤAR, dust: for *scabies* in head, †, following "dust of sesame", shave head, bind on, *AM.* 1, 2, 11. ZID SAḤAR ŠE + BAR + ŠE, for mouth, †, *AM.* 24, 5, 14: prob. †, *AM.* 30, 8, 5. In *AM.* 73, 1, 14, the SAḤAR and ZID occur side by side for a swelling.

(3) Water: Feet, heat¹ various drugs in water of ŠE + BAR + ŠE, *AM.* 70, 7, ii, 9. Note *AM.*, 16, 2, r. 2, 3, 4. "Water of ŠE-BAR-ŠE ŠAR" as a third medium with milk and beer for a poultice (for feet, probably), *AM.* 68, 1, 8 (*cf.* *me-e u-ru-ul* ŠE + BAR + ŠE ŠAR . . . , *ib.*, r. 2), presumably the green plant.

(4) RIM. With fir and pine-turpentine, *Ricinus*, linseed, roses, wheat-flour, pounded flour in ū-SA na-aš-pi beer as poultice for blains (*šiggati*), *AM.* 32, 5, 10. *Stomach* or *anus*, †, *AM.* 86, 2, 9 (for complete text see *RA.* 1929, 51). *Bruise* (*dikšu*), †, in strong vinegar and rose-water, poultice, *KAR.* 182, 25: †, in fat, *etc.*, *ib.* 34 (both RIM ŠE ŠE + BAR + ŠE). On *aching teeth*, with ū-SA-beer and oil, *CT.* xvii, 50, 25, and *AM.* 25, 1, 8.

Quantity: to remove "fire of the stomach", 1 qa, †, uncertain use, *AM.* 40, 1, 61. *Cf.* *AM.* 70, 8, 5.

ZID (?), flour (?), of RIM ŠE + BAR + ŠE, *AM.* 82, 1, 8.

(5) UŠ "penis": for *scabies* on head, †, anoint in cedar- "blood". apply, bind on, *AM.* 1, 2, 15: *cf.* *KAR.* 156, r. 13.

¹ I see that I have omitted *BE* before *ir*.

ZID-ZID UŠ : feet unable to walk, †, anoint, bind on, *AM.* 68, 1, r. 17 (cf. 69, 8, r. 2).

(6) *Tappis* ŠE + BAR + ŠE sa[hindu], *AM.* 96, 1, 2 (cf. *KAR.* 202, iv, 35).

(7) BA-BA-ZA, *CT.* xxiii, 43, 25, 27 (temples, †, bind on) (*Getr.* 106), the latter dup. of *KAR.* 202, iii, 28. Cf. *AM.* 37, 4, 8.

(8) *I-ra* ša ŠE + BAR + ŠE, with *ha-hu-ú šá(!) utuni*, RIM ŠE + BAR + ŠE, †, boil in rose-water, bind on, *KAR.*, 192, iii, 13.

6. ZÍZ-A-AN, ZÍZ-AN-NA, as "husked emmer" (*Getr.* 76) is found on early tablets. In *MT.* it occurs :—

(1) *Simply*: Lungs, †, *AM.* 53, 1, 18 + 63, 6, 14.

(2) ZID, flour: *Head*, †, in rose-water [bind on], *CT.* xxiii, 31, 61 : cf. 39, 11. *Ears*, †, *AM.* 35, 2, 13. *Bruise* (*dikiš*), †, [poultice], *Am.* 96, 1, 8. *Poultice*, †, *AM.* 98, 3, 11. As medium for mixing, †, for a blow (*mišitti*), *AM.* 82, 2, 10.

(3) ŠÁ-ŠIT-MAL, dough; *AM.* 24, 4, 12 : 45, 2, 4 : 81, 8, 11.

(4) *Bread* (*Getr.* 198) : 14 loaves in ritual, *KAR.* 38, 5 : parallel to *kaman tumri* "breadcake of the ashes", *KAR.* 42, 25. ŠÁ-ĦAR-RA ZÍZ-A-AN, †, is prescribed for a woman in childbirth, *KAR.* 195, iv, 35. 7 ŠE ZÍZ-A-AN is included in a ritual, *AM.* 91, 4, 10 (cf. 2).

Triticum vulgare Vill. is used in India as a demulcent, the flour as a local application, and the wheaten bread as a poultice (*WPI.* 254).

7. ŠE-GIŠ-NI, "corn of the oil-tree," *šamaššammu* (for *šamanšammu* ?), Arab. *simsim*, sesame (*Sesamum indicum* DC. has been cultivated from the earliest times, *MPB.* ii, 1010). Herodotus describes the different cereals of Babylonia thus (i, 193) : "The blades of wheat and barley grow there to full four fingers in breadth; and though I well know to what a height millet and sesame grow, I shall not mention it, for I am well assured, that to those who have never been in the Babylonian country what has been said concerning its productions will appear to many incredible" (Cary's translation).

It occurs as early as the 3rd dynasty of Ur in Myhrman, *BE.* "A", iii, 1, no. 125, Genouillac, *RA.* 1911, 18, 8, *ITT.* ii, 1, 846, *TURK.* p. 34. It is also found in an OB. letter, Ebeling, *RA.* 1913, 106, 111, 129, in a Kassite letter, Radau, *BE.* "A", xvii, 1, no. 84, and frequently in late Assyrian contracts (see *ADD.*).

Šamaššammu is found thus in *MT.* :

(1) *Simply*, rare, e.g. ŠE-GIŠ-NI BÁR-GA with *Ammi*, human bone, glue, black and yellow sulphur, bray together in IÀ-GIŠ (oil) to rub on or anoint, *AM.* 19, 2, ii, 6 : cf. ŠE-GIŠ-NI BÁR-GA along with IÀ-GIŠ BÁR-GA (which definite description of oil would at once prevent us seeing the "oil" of Sesame in the simple expression ŠE-GIŠ-NI BÁR-GA).

(2) GAB ŠE-GIŠ-NI, literally, "wax of sesame," which must be the mucilage from the leaves : "The leaves of the plant are mucilaginous, and employed for poultices" (*PC.* xxi, 1849, 292) : *Head*, †, *AM.* 6, 9, 9 (*UD-DU-tim*) (cf. 6, 3, 4). *Blow* (*mišitti ammîti*) (i.e. doubtless, with effect of stunning), †, *AM.* 79, 1, 18. *Eyes*, ext., †, *KAR.* 202, i, 22, dup. *AM.* 5, 3, y ff.

Quantity : $\frac{1}{2}$ qa, *Kü.* ii, i, 11 : ii, ii, 49. For swelling, †, poultice, *AM.* 73, 1, 9. A figure made of it, *KAR.* 235, r. 18.

(3) ZID, flour: (UD-DU, dry), 10 shekels, for *head*, † (?), *AM.* 6, 3, 3, 4. To ease muscles of *arms and legs*, †, *AM.* 98, 3, 14.

(4) SAHAR, dust: *ša išid maš-ḫal-ti*, *ext.*, for *scabies* in *head*, †, *AM.* 1, 2, 14.

1 *zaqpu* ŠE-GIŠ-NI mentioned, *ADD.* 1007, r. 5 (Assyrian).

It is generally accepted that the IÀ or IÀ-GIŠ oil in ancient Mesopotamia was that of the sesame. The olive has been difficult to identify, and although it is to-day grown in groves about 14 miles east of Nineveh, it cannot be said to be common in the country. There is, however, no doubt that during the early part of this era olive-oil was made at Nineveh itself, for we found obvious vats for the making of it during our excavations (*CEN.* 141). Yet sesame is not a plant which meets the traveller's eye in the north of modern Mesopotamia as it does in the south, and this lack of sesame in the north is shown by Sargon (*KB.* ii, 44, Lyon, 41: Luckenbill, *Anc. Rec.*, ii, 63) "that the oil of abundance which eases men's muscles should not be too costly in my land, sesame was sold at the (same) price as grain". This comparative costliness of sesame-oil is well shown in the relative prices when Ashurbanipal came to the throne, when the shekel purchased 234 *qa* of grain (ŠE-BAR), but only 66 (?) *qa* of sesame. In other words sesame was about $3\frac{1}{2}$ times more expensive than ŠE-BAR when even dates (which also had to be transported from the south) were sold at one *gur*, two hundred and ten *qa*, for the shekel, even cheaper than the local grain (King, *Boundary Stones*, No. xxxviii: Meissner, *OLZ.* 1918, 121¹).

Obviously the sesame had to be obtained for oil, no matter how expensive it was, even in Assyria, which goes to show that the olive, so common in the E. Mediterranean countries, could hardly compete with it if, indeed, it grew in Assyria at all. In any case, it would hardly flourish in the heat of S. Mesopotamia (below Tuz Khurmati).

Pliny (*NH.* xxii, 64) says that sesame is applied topically to ears and burns, and in wine to eyes.

8. ^{šam}ŠE-ŠIŠ (ŠEMUŠ), *šigušu*², and ^{iš}ŠE-ŠIŠ, *šaššugu*.

That these are two different things is obvious from (a) *MT.* which shows (^{šam})ŠE-ŠIŠ to be a bitter vetch, and (b) *ABL.* 566, which shows ^{iš}šá-áš-šu(?)*-gi* to be of 10 cubits length. We can take the ^{šam}ŠE-ŠIŠ first.

It occurs in *MT.* thus:

(1) *Simply*: *Ears*, cedar oil and ŠE-ŠI[Š (?)] . . . , *AM.* 34, 1, 33. *Quantity*, 1 *qa*, *CT.* xxiii, 1, 3.

(2) ZID (flour): *Temples*, †, bind on, *AM.* 20, 1, 37: *CT.* xxiii, 41, 16. *Blains* (š*i*(g)*gati*), †, bind on, *KAR.* 192, r. ii, 46. *Sorcery*, alone in cedar and cypress oil anoint, *KAR.* 90, r. 18. ZID-ŠUR-RA šá ZID ŠE-ŠIŠ occurs *AM.* 4, 5, 7 (*cf.* *KAR.* 184, 6).

CT. xxiii, 1, 1-4 prescribes (for muscles of the loins (lumbago) after certain treatment) "wiping" (*tukappar*) the leg with ŠÁ-ŠIT-MAL ŠE-ŠIŠ, "dough of bitter vetch." In an incantation against *muruš qaqqadi*³

¹ Meissner has omitted "1 *gur*" in his transliteration of line 6.

² Note ^{iš}MA + GUNU-ŠIŠ = *šigušu*, *D.*, 146, 9, which must be a bitter apple, crab-apple (?), or even Dead Sea Fruit (?), but there is no evidence to show what it is.

³ From the drugs, and from *ibid.* l. 202, where two forms of sulphur are used, it is obviously an external disease of the head, and not headache.

Ea gives counsel which shall make the *gûlu* of the patient's head tremble : " *arsuppu* še-šiš *inninnu*, which in its growth (*ši-ir'-i-ša*) has reached its day, let an old woman with clean hands bray, and mix together and knead, and put it on his head . . . that the sickness of the head, like the pigeon to the cote, like the raven [to] . . . heaven, like the bird to the broad places may fly away " (*CT.* xvii, *pl.* xxii, 129 ff.).

A curious ritual against ghosts shows its peculiar use : *CT.* xxiii, 17, 33 ff., dup. *KAR.* 21, r. 1 ff. : after washing his hands in alkali and burnt gypsum (*gaššu*)¹ he is to say " O Shamash, the evil ghost which thou knowest and I do not know, let it not approach, let it not draw nigh, let it not be hostile LUH (*v. QA.*) its way mayst thou bar " ; and after speaking thus he is to fill a bull's hoof with water, put therein flour of še-šiš, beat it up before the sun with an *elpitu*-reed, pour (it) out, and the ghosts shall be stopped. Here the paste of the bitter vetch is used on account of its bitterness, and the bull's hoof typifies, I suggest, that by sympathetic magic the evil is to be kicked away. (For the hoof of a wild ox cf. *CT.* xvi, *pl.* 37, 38 : *Devils*, i, 169).

The " flour of roast grain of še-šiš " is used in an incantation against ghosts, *CT.* xxiii, 16, 12, and 17.

That this plant is a corn or a vetch is obvious from its presence in the vocabularies on p. 95f. ; its meaning " bitter corn " gives us the final clue, and we must see in it a bitter vetch. We must, however, turn aside for a moment to consider *šamkiššenu* and *šamgulbutu* along with it, since both of these must be included in the solution.

At first sight, *šamkiššenu*, with its Sumerian *šamše-gú-šá-ḥar-ra*, (*i.e.* " vetch of baked bread ") should be the *Lathyrus sativus* L. " A white, light, and pleasant-flavoured bread was made from the flower [*sic*] of the seed ; but it produced such dreadful effects in the last century, that the use of it was forbidden. . . . Mixed with one half of wheaten flour, a perfectly harmless and good bread is produced " (*VK.* 317). Actually, on philological grounds, the Assyrian *kiššenu* should be the Syr. *kušnê*, *Vicia Nissobiana* L. or *V. Ervilia* L., which is the Arab. *kursennah*,² equated also with either the Black Vetch, or *Orobis sessilifolius* Sibth. et Sm. (*FJ.*² ii, 485 ff. : *FP.*² i, 425), as well as the *Lathyrus sativus* (*FJ.*² ii, 486). (It may be added that the *kussēmēth* of the O.T. is *Triticum dicoccum* Schrk., *FJ.*² i, 768.) Scheil (*ZA.* 1893, 199, 13) gives . . . -*ku* | *in-nu* *gú-šá-ḥar-ra*, which indicates a straw. But *Lathyrus sativus* is also given as an equivalent to the Arab. *jilbān*, Syr. *gūbā* (Ainsworth, *A.* 34 : cf. also *FJ.* ii, 440), and this must surely be our *šamše gulbu*, *gulbutu*. Consequently, we have to accept that there is and was a confusion between the vetches in the Semitic dialects, and all we can do is to suggest the following possible allocation of these :

(a) *gú* of the " baked bread ", since it is *kiššenu*, must be either *Lathyrus sativus* from which bread is made or, as equivalent to the Syr. *kušnê*, one of the *Viciæ*.³

¹ Cf. *KAR.* 92, 27, of washing hands with *IM-PAR* (*gaššu*) and river-water.

² I should add here that I heard the form at Mosul *kešān*, a plant " like beans ". Cf. Löw, *Ar. Pfl.* 228, and *ZA.* 1915, 171 ff.

³ *gú egli* occurs on a Nineveh text found by us, used for removing *qiš-mi* (darkness) of eyes, by local application.

(b) ^{šam}še gulbu must be jilbān, *L. sativus*.¹

(c) ^{šam}še-šiš, šigušu, as particularly "bitter corn", one of the *Orobis* genus, *O. tuberosus*, the Tuberous Bitter Vetch, *O. niger*, or more probably than either of these, *V. ervilia* (L.), the Bitter Vetch.

Now, leaving ^{šam}še-šiš, probably the Bitter Vetch, we can discuss ^{šš}še-šiš. This is a tree or shrub, as is clear from *ABL*. 566, 16, where there is a mention of 20 ^{šš}šá-áš-šu(?)²-gi of 10 cubits length, alongside 6 ^{šš}šá-má-kan-na (mulberry) of 6 cubits length and 1 thickness, 1 ḥa-lu-úb (fir) of 5 cubits length, 1 thickness, 10 ^{šš}šá-má-kan-na of 2 qa thickness and 5 or 6 cubits length, 1 fine ^{šš}ku (willow) of 2 qa thickness and 6 cubits length. The fact that no thickness is given for the 10 cubit lengths of ^{šš}šáššugi suggests that they are thin and very long poles. We find "1 qablu ^{šš}šá-šu-gi" grown in groves or gardens near Harran (*Domesday* 1, ii, 43). The most probable cognate is the Syr. *qaisá dh^{šš}šišagh*, Arab. *šaišafān*, the *Calycotome spinosa* Lam., or *Cal. villosa* Link., oily and fragrant (*FJ*. ii, 426), one of the Papilionaceae to which family the vetches belong, which is a good reason for the similarity with ^{šam}še-šiš.

9. ŠE-GUD (šeštub), *arsuppu* (*D.* 367, 154 : Ungnad, *ZA*. 1918, 255). ^{šš}MA + GUNU-GUD is also *arsuppu* (Meissner, *MVAG*. 1913 ², 16, 49) (3rd Dyn. of Ur, Scheil, *RA*. 1921, 56, 10). *Arsuppu* is used in the incantation against *murūš qaqqadi* quoted above with šē-šiš and *inninnu*, all three being brayed, mixed, kneaded and applied to the patient's head (*p.* 103). It occurs also in a ritual with seven other grains or vetches (*BBR*. No. 41, 25 ff., see below).

ZID ŠE-GUD ("flour of Š.") occurs *AM*. 91, 4, 2 (*cf. ib.* 2, 5), *JRAS*. 1905, 829 : *VR*. 26, 230. (Note *ar-su-up* ID *nāri*, *Tod*. 14, iii, 3, and compare the name *Cicer arietinum*, "ram's head," so called from the shape of the seed.)

As is noted above there is also a tree ^{šš}MA + GUNU-GUD, *arsuppu*, just as there is a ^{šš}MA + GUNU-ŠIŠ, šigušu-tree.

10. ŠE-IN-NU-ḤA, (^{šam})inni(n)nu (*D.* 367, 101).

This occurs thus in *MT.*, etc. :

(1) *Simply* : In a ritual ² with ŠE-GUD, ŠE-ŠIŠ (Bitter Vetch), ŠE-GIG (wheat), ŠE-ZÍZ-A-AN (emmer), GÚ-GAL (*Lathyrus*), GÚ-DU₁₃ (fenugreek), GÚ-ŠÁ-ḤAR-RA (wheaten bread), *BBR*. No. 41, 26. *Cf.* also *p.* 95.

(2) ZID (flour) : *Head* (to remove (?) . . .) with flour of GÚ-GAL (*Lathyrus*) flour of GÚ-DU₁₃ (fenugreek), together in yeast steep, shave (head) and bind on, *CT*. xxiii, 33, 18 (*cf. AM.* 6, 9, 6 ff.). Blow (*mišitti*), †, poultice, *AM*. 77, 8, 10 (ZID ŠE-IN-NU (?) . . . ḤA, not certain).

Quantity : 7 šē, *AM*. 91, 4, 9.

The simple corn can be parched, *i.e.* 1 qa ŠE-SA ŠE-IN-NU-ḤA (ŠE-SA is a basket), *CT*. xxxii, 49, r. 18-23, *RTC*. 52, r. 4, *CT*. 39, 3, 13.

I can suggest, as an equivalent, which I feel rests on an insecure foundation, the *Anamirta Cocculus* Wight et Arn., *Menispermum cocculus* L. (*MPB*. ii, 576) (*Cocculus indicus*), imported from the E. Indies, and found in the forests of Malabar (*PC*. vii, 306). *IB*. 2057 speaks of it

¹ GÚ-NUNUZ occurs in the Fara texts (*VAT*. 12625, 16) and *Nik*. 63, 64, 68 (see *D.* 106, 168).

² Note Ezek. iv, 9, which prescribes the taking of wheat, barley, beans, lentils, millet (*dōhan*) and spelt or emmer (*kuss^{šš}mām*) (*cf. Getr.* 47).

under the name *māhī-zahrah*, well known to the Arabs in his time, and I have seen (probably the same) berries in the Mesopotamian bazaars used for killing fish in the same way as the *Cocculus* was used. *IB.* does not mention the berries, but the bark only in this use. "It is a familiar poison for destroying fish. . . . The fruit is a berried drupe, varying in size from that of a pea to that of a laurel (or bay) berry . . . ; the external integument, or husk, is very brittle ; within is the seed or kernel, lunulate, oily, with a nauseous and intensely bitter taste . . . *Cocculus Indicus* is never used internally in the practice of medicine, but an ointment formed of the powdered berries is very efficacious in some cutaneous diseases, such as *Porrigio capitis* and *Sycosis menti*. It speedily allays the inflammatory state." It is a climber having "a stout woody stem as thick as a man's wrist" (*PC. ib.*). *BMI.* 56 gives it as an insecticide. Watt (*Dict. Ec. Prod. of India* i, 233) speaks of its bitter berries used to poison fish, and an ointment made from it to destroy pediculi, the plant coming from S. and E. India, Burma, and the Oudh forests. "The Arabs were probably also acquainted with it, but there is no satisfactory evidence upon this point to be gathered from their writers upon *materia medica*" (*ib.*, quoting Dr. Dymock, *Mat. Med.*, W. India, 20). *FJ.* ii, 252 gives the Arabic as *samm al-samak* "fish-poison". Ainslie (*Mat. Ind.* ii, 131) says that the tree, according to Avicenna, was the [*mhrj*] mehurge of the Arabians of his day, who were acquainted with the effect of the berries in intoxicating fish, and he goes on to say that it is the *coque de Levant* of the French. Rauwolff (*Travels* i, 127) describes it as used in the Euphrates. *BMM.* 137 prescribes it in decoction, ointment, and paste for epilepsy, chorea, and paralysis, and locally as a parasiticide, so that he at all events suggests internal use.¹

It certainly occurs at a very early date in Babylonia (Reisner *TURK.* 121, ii, 5 ; *ITT.* iv, 7129, 16, a small quantity in proportion to the other grains), but the possibilities of the identification of *inninnu* with the *Cocculus* depend only on the 𐎶𐎵 "fish" at the end of the Sumerian word, and its properties as a remedy for the head.

11. *šam*ŠE-GÚ, *kakkû* (which is also *šam*ŠE-GÚ-DU₁₃ "the small vetch"). GÚ appears to be a general picture for some of the Papilionaceæ (GÚ = "neck"), probably from the shape of the pod. We can discuss *šam*GÚ-GAL "the great GÚ" and *šam*GÚ-DU₁₃ "the little GÚ" here.

(a) (*šam*)GÚ-GAL "the great vetch" (= *halluru*, Hrozný, *OLZ.* 1913, 52, cf. *FJ.*² ii, 437, the Heb. *ḥārāl*, Syr. *ḥurlā*, a kind of *Lathyrus*) occurs thus in *MT.* :

(1) *Simply*: *Ext.*: apparently some *skin-trouble* or *boil*, †, poultice, *AM.* 84, 4, iv, 5. *Bruise* (*dikšu*), †, *AM.* 96, 1, 12. 7 ŠE (grains) *AM.* 91, 4, 11.

(2) *zīd* (flour): *Ext.*: *Head*, *scab*, †, [bind], *AM.* 1, 2, 19: *Eyes*, †, 5 carats, bind, *AM.* 8, 1, 14 (probably): †, *AM.* 13, 3, 9. [*Breast*] and *loins*, †, bind, *AM.* 51, 8, 3. *Bruise* (*dikši*), †, *AM.* 96, 1, 8.

Quantity (besides the instance above): *head*, †, bind, 10 shekels, *CT.* xxiii, 33, 11.

GÚ-GAL and GÚ-GAL-ḤAR-RA ("ground GÚ-GAL") are found in the

¹ Watt, *CPI.* 546, gives other intoxicants to kill fish. *IB.* 2057 speaks of *sikrān al-ḥūt* "fish intoxicant", which Southeimer considers *verbascum*.

time of the dyn. of Ur (*TURK.* p. 15: GÚ-GAL-GAL, similarly Myhrman, *BE.* "A", iii, 1, no. 45, 3). GÚ-GÚ-GAL and GÚ-GÚ-DU₁₃ in the Agade-period (De Genouillac, *ITT.* ii, 2, 2916, see also Langdon, *ZA.* 1913-14, 109).

The use of GÚ-GAL as one of the *Lathyri* in medicine in poultices hardly needs comparison.

(b) ^{šam}ŠE-GÚ-DU₁₃, *kakkû*, the "small vetch", *pulili*, *Trigonella Fœnum-Græcum* L.

It occurs thus in *MT.*:

(1) *Simply*: *Head*, against grey hair, †, [*ext.*], *AM.* 3, 6, 8. *Feet*, with roses and cress in rose-water, bind, *AM.* 74, 1, 33. *Poultice*, †, *AM.* 84, 4, iv, 5. 7 ŠE (grains), *AM.* 91, 4, 11.

(2) *zid* (flour): *Head*, †, bind, *AM.* 3, 5, 9. *Temples*, †, bind, *CT.* xxiii, 41, 17. *Scab* on head, †, *AM.* 1, 2, 19. *Eyes*, †, *AM.* 13, 3, 9. *Stomachic*, with ^{šurnê}, through a reed in mouth, *Kû.* ii, iii, 57.

Quantity: 10 shekels, *head*, †, bind, *CT.* xxiii, 33, 11: *temples*, †, bind, *ib.* 45, 11. $\frac{1}{2}$ *qa*, †, bind, *AM.* 15, 3, 18.

Like GÚ-GAL¹ it is thus used for poultices, and the medical comparison is unnecessary.

Ebeling (*E.*, xiii, 16, n. 6) gives the equivalence *pu-li-li* from an unpublished vocabulary, which he translates "Linsenmehl (?)". But *pulili*, being probably one of the Papilionaceæ, must surely be the Syr. *p'iltâ*, *Trigonella Fœnum-Græcum* L., not necessarily a doublet of the Aram. *šehhiltâ*, but very definitely identified (see *FJ.*² ii, 478), and this would harmonize well with its use in *MT.* In *SM.* *Trigonella*-flour is frequently used (*e.g.* ii, 693, for *scabies*). GÚ, as *kakkû*, would appear to be the same, but it is not easy to find a cognate for this latter unless the Syr. *g-g-na*, *ervum*, is a possibility (*AH.* 277), or *k-k-me*. The restoration *kakru* or *kakkuru* (?) (Ungnad, *ÖLZ.* 1923, 272), with the suggestion of equivalence with *cicer*, is in the face of *kak-ku-u* untenable, as may also be said of Langdon's views about it, *JRAS.* 1925, 718. Ungnad, however, courteously corrected this in accordance with *AH.* 277 in *ZA.* 1926, 223.

12. ^{šam}ŠE-LI-A, ^{šam}*kurangu*, *Oryza*, rice. I am indebted to *Iraq* 1939, 180 ff., for the following quotations from my article there. "The Sumerian word ^{šam}ŠE-LI-A is made up of ŠE 'corn' + LI-A = *dišu* 'grass', but it is the translation *kurangu* which gives the clue. *Pirinj* is one of the words used in Arabic (especially in Mesopotamia) for 'rice', and in my article I quoted in full from *FJ.* i, 731, which gives ample proof that the history of the word *pirinj*, as equivalent of the Persian *guringj*,² must be the original of our word ^{šam}*kurangu*."

With this obvious philological connection there is no difficulty in accepting the certainty that rice was at least known, even if not cultivated, in Mesopotamia, in the seventh century B.C., and perhaps even earlier (according to whatever date may be assigned to *VAT.* 9000 or BM. No. 108860). That rice was already in Mesopotamia in the Persian period is well known (see *FJ.* i, 731).

I may quote the following on the early history of rice:

¹ Here I might add GÚ-GID-PA, as *D.* 106, 159 suggests, "Langbohne," in which case it will be *Vigna* "long bean" (dyn. of Ur, Myhrman, *BE.* "A", iii, No. 44, 2).

² See also Steingass' *Dictionary*, s.v.

"Writers are agreed that the earliest mention of rice cultivation is connected with China, where, according to Stanislas Julien, a ceremony was established in 2800 B.C. by Emperor Chin-nung, in which the sowing of five kinds of grain, one being rice, is the chief observance . . . modern philologists are agreed that they [various words for 'rice'] . . . come from the Old Persian word *virinzi* or *virinza*, the modern equivalent of which is *biringj*" (CPI. 824). Sir C. J. Lyall states (quoted *ib.*) that *virinzi* is exactly the equivalent we should expect of the Skr. word for rice *vrihi*, and the names point to the time when the two branches of the Aryan race dwelt together. P. HORN, in his *Grundr. d. Neupers. Etym.*, No. 208, says (of "*guringj* (AM.) 'Reis'"): "Vielfach entlehntes, gewiss ursprünglich arisches Wort: vergl. arm. *brinj*: kurd. *biringj*: oss. *brinj* (Hübschmann, S. 121): bel. *brinj* (35): wax. *guringj*, &c."

Again, from HEHN's *Kulturpfl.* (6th. ed.), 486:

"Nach einer Notiz des Athenäus nämlich hatte Sophokles in seinem Triptolemos von einem ὀρίνδης ἄρτος gesprochen." And he quotes Phrynichus (*Bekk. Anecd.* 1, p. 54) ὀρίνδα. ἦν οἱ πολλοὶ ὄρυζαν καλοῦσιν; and *ib.* 487 "Die Namensform ὀρίνδα ὀρίνδιον stimmt merkwürdiger Weise in der Nasalisierung, hinter welcher das ζ in δ überging, mit dem armenischen *brinz*, neupersischen *biringj*, *biranj* überein. Herodot selbst, der ja auch schon von der auf Bäumen wachsenden Wolle gehört hat, erwähnt einer Abtheilung der Inder, die sich von einer wildwachsenden Pflanze nährte, deren Körner von der Grösse eines Hirsekorns in einer Hülse steckten und mit der letzteren gekocht und so gegessen werden, (iii, 100): καὶ αὐτοῖσι ἐστὶ ὅσον κέγχρος τὸ μέγαθος ἐν κάλυκι, αὐτόματον ἐκ τῆς γῆς γινόμενον, τὸ συλλέγοντες αὐτῇ κάλυκι ἔψουσὶ τε καὶ σιτέονται."

Add also from Theophrastus (iv, iv, 10):

"But above all they [the Indians] sow a cereal called rice, of which they make their mash. This is like rice-wheat [ζεια], and when bruised makes a sort of porridge, which is easily digested; in its appearance as it grows it is like darnel, and for most of its time of growth it is in water; however, it shoots up not into an ear, but as it were into a plume, like the millet and Italian millet."

Our word *kurangu* is obviously taken over bodily from the Persian *guringj*; it is one of a group of grain-words, so that we need have no doubt about its connection and, to complete the proof, ^{šam}ŠE-LI-A "corn + grass", coincides with the description of *oryza sativa* in RHIND, *Vegetable Kingdom*, 221, "this is a paniced grass."

13. ^{šam}(ŠE)-ab(ēš)-šu(šū)-man-na-gu, ^{šam}lāl-(la)-an-gu, probably indigo.

Again I am indebted to Iraq 1939, 63, for quotations from my article.

"Here again we must be dealing with one of the vetch-like plants.

The word ^{šam}lālangu certainly bears a resemblance to the Persian لیلانج (*līlanj*), the Indigo plant. Its exact relation to ŠE-ŠIŠ (which is either the 'bitter vetch', one of the genus *Orobis*, *O. tuberosus* perhaps, or more probably *Vicia ervilia* L.) is difficult to assign, but if the Assyrian scribe in giving it a synonymity with a 'bitter vetch', be correct, then we might again compare the Syr. ܠܝܠܢܝܬ ܕܬܝܢ, *indigoferæ tinctoriæ semen*, the

Arabic حب النيل (Payne Smith, *Thesaurus*, 591); on the other hand, at all events Löw, *FJ.* 1, 496 says: 'Wenn BS. BB. 407 *ḥabb en-nīl* zu *𐎶𐎶𐎵 𐎶𐎶𐎵* (AUDO 1, 101, *𐎶𐎶𐎵 𐎶𐎶𐎵 𐎶𐎶𐎵 𐎶𐎶𐎵*)¹ setzt, so wird das unrichtig sein.'

"But there is no question that *še-šiš has an original meaning of 'bitter corn-plant'. Again, the equivalence of **lalangu* with *GÚ-DU₁₃ shows that it is a 'small vetch'.

**Elmeru*, **elmesu* are troublesome, because the Assyrian botanist does not seem to have been certain about them: in one place he gives **lalangu* as **elmeru*, in another as **elmesu*. Still more so are [*š]E *ab(ēš)-šu-man-na-gu*, **ab(ēš)-šu-an-g[u]*.

"Now the connection of the Indigo with vetch-like plants is obvious from the following: 'The Indigo Plant grows about two Foot high, with round Leaves . . . ; after which come Flowers, almost like those of Pease, of a reddish Colour, from whence come long, crooked Pods, resembling a Sickle, or Hook, which enclose a little Seed in them' (*HD.* 89). Lemery (*op. cit.* 91) says that the *Anil*, *Gali*, *sive Nil* 'resembling Rosmary' is a plant of Brazil, with flowers like those of peas, reddish, and succeeded by long crooked pods: 'all the Plant has a bitter piquant Taste.' (And to this I may add, of the *Annil*, 'called *gali*,' which LINSCHOTEN describes (*Voy. E. Ind.* 1598, i, 61-2: ii, 91, quoted by *CPI.* 664), this author says 'it groweth in India . . . very like rosemary'.)

"Three species of *Indigofera* are now found in Syria or Palestine (*I. arabica* Jaub. et Sp., *I. paucifolia* Del., and *I. argentea* L., the latter cultivated and subsontaneous from Arabia) (*FP.*² 1, 368). PLINY (*NH.* xxxv, 46) says that Indicum comes from India; DIOSCORIDES (v, 107) speaks of it as *Ἰνδικόν*. The *Periplus of the Erythræan Sea* (A.D. 80, McCrindle, transl. 17, 109, quoted by *CPI.* 664) speaks of Indigo as exported from Barbarikon, a Scythian town on the Indus. In conclusion, it is worth noting that the Persian termination *-nj* may have been represented by *-angu* in the seventh century B.C. by the Assyrians."

14. šE *arzik*, *duḥnu*, *Panicum miliaceum*, L., millet, the Mishn. *dōḥan* (see Hrozný, *Anz. d. Kais. Ak.*, *Phil.-Hist.* 1910, 31: *AF.* 55): "als ursemitisch unbekannt," *FJ.* i, 739.

15. šE *al-du-um* should be included here (Thureau-Dangin, *RA.* 1924, 22, 6, quoting Ham. Code, r. xxi, 73 and 83: *VS.* xvi, No. 50, 22).

16. ZID-MAD (v. MA-AD)-MAL (1) *upuntu*, chick-peas, (2) *maṣḥāti*.

From the various texts in which ZID-MAD-MAL (variant ZID-MA-AD-MAL, Thureau-Dangin, *RA.* 1924, 132, 8) occurs it is obvious that we have two different substances. From *Šurpu* v, 123 and 130 (and presumably *GE.* v, ii (iii), 48), it is a seed: from other and more ritual texts it is an aromatic to be burned in censers.

(a) *Upuntu*. The value *upuntu* for ZID-MAD-MAL is found in *Šurpu* v-vi, r. iii, 1 and 8, where šE-ZIR *u-pu-un-ta* in the preliminary ritual is replaced by šE-ZIR ZID-MAD-MAL in the ensuing directions. Thus l. 123,

"my hands are full of šE-ZIR *upunta*,"

which goes on in l. 30:

¹ "Seed of *mīlā* which comes from India."

"As this ŠE-ZIR ZID-MAD-MAL is burnt in the fire
The cultivator shall not plant it in the field,"

and so on, showing in the succeeding lines that it will stand in the runnel and have root and shoot.

Thereafter we can see it as the food which Gilgamesh carries with him as a *viaticum* :

"They dug a pit in the sunlight . . .
Then went up Gilgamesh on [the mountain]
ZID-MAD-MAL-su he poured out [into the pit]
'O Mountain, grant (me) a dream' . . ."

It is a pathetic little offering, all that the traveller can give ; *upuntu* is all that he has, probably carried in a small bag with him, as his only food for his journey. So also are they used by being thrown into the river as an offering (*JRAS.* 1925, 43, 13).

In the explanatory ritual text *BBR.* No. 27, 15 it is possible that ŠE-BIR-BIR-RI-DA is explained by *ú-put-un-tum* ŠE-ZIR^{vi} *ma-ka-lu-ú* ("seeds for a meal").

The Mishnaic '*appôn*, chick peas, was seen to be the philological equivalent of *upuntu* as far back as Halevy (*Doc. Relig.* 138, "grain de pois"; cf. *FJ.* ii, 427).

It was a common food of the simplest kind to take on a journey (cf. Rauwolff, i, 68, quoting many sorts of *cicer* either boiled or eaten raw at Aleppo).

(b) *Mašhāti*. Cf. *CT.* xvi, 27, 27, ,, (= *alú limnu*) *ša niqá la idú ma-aš-h[a-ti]* (= ZID-MAD-MAL) *la idú atta* "Evil *alú* that knoweth not sacrifice nor *mašh[ati]* art thou"; *ib.* 42, *maš-ḥa-ti ul iš-r[uq]* (DUB-DUB[U]), parallel to 44 [*niqá*] *ul i-[naq-qu-u]*. There is no doubt that the text *BBR.* 1-20, 53 (III *niknakku* ^{vi}*iburašu* ^{vi}*erini* ZID-MAD-MAL *ta-šar-raq*, "3 censers of pine-gum, cedar (and) ZID-MAD-MAL thou shalt offer") shows that ZID-MAD-MAL cannot mean "chick peas" here, but must be incense. Thureau-Dangin was therefore right in *Rituel accadiens*, 122, 21, *ina* ^{vi}*erini* ^{vi}*buraši* ZID *mašhati ina páni libissi taqalla* "in cedar, pine-gum, powder of *mašhati* before the drum thou shalt fry (burn on a brazier)". In *AM.* 84, 4, r. III, 10, 11, we get "7 GAR ZIZ-A-AN 2 qa ZID *maš-ḥa-ta* ša . . . 1 qa *tábtu riqqē*^{vi} *kal-šú-nu*", etc. It is not clear exactly what is meant, but ZID *maš-ḥa-ta* is more probably "powder of incense" than "flour of chick peas".

V

FLAX

FLAX

1. ⁽⁴⁵⁾KAT, *kitû*, *Linum usitatissimum* L., flax. (*Kitinnu*, a linen garment.)
2. *Išê^{vi} naš šipâti^{vi}*, *Gossypium arboreum* L., cotton-tree.

1. ⁽⁴⁵⁾KAT, *kitû* occurs thus in *MT.* :

(1) *Seed*: *ext.*: "Middle" (pelvis), †, bind on, *AM.* 61, 2, 6: †, in oil [anoint (?)], 69, 8, 15. *Lungs*, steep (wash) in *kurunnu*-beer, spread alone on a cloth, *AM.* 55, 2, 2: anoint, †, in *himetu*-ghee, *AM.* 54, 1, 5. *Blains* (*šiggati*), †, bind on, *AM.* 32, 5, 5: *poultice*, *ib.* 10. Bandage for a *bruise* (*dikšî*), †, *AM.* 96, 1, 3. Uncertain disease, †, anoint in oil, *AM.* 94, 2, ii, 12. *Int.*: ZI-TAR-RU-DA, with mint, ^{šam}*imhur-pâni* (heliotrope), and seed of ^{šam}AŠ (*Asa foetida*), drink in BÂR-GA oil, *AM.* 90, r. iii, 17. *Quantity*: $\frac{1}{2}$ *qa*, †, *AM.* 51, 10, 2: grind up $\frac{1}{2}$ *qa* for poultice (alone (?)) for QI *mišitti* (result of a blow) steaming hot, *AM.* 77, 1, 11.

(2) KU-KAT "linen cloth", for applying poultices, *AM.* 28, 3, 7, *tašappar*, var. *tesipir*, *AM.* 16, 5, ii, 6. *Nostrils*, for foetor, †, *tašap[par]*, *AM.* 25, 6, ii, 10 (*cf.* 90, 1, 7). *Poultice* (?), *AM.* 84, 4, i, 8. Sprinkle with oil, *AM.* 27, 1, 4. ZI-TAR-RU-DA, KU-KAT *takattam-šu*, *AM.* 90, 1, 7.

MT. appears to have used linseed as a poultice as well as internally (the latter, as in India, demulcent and aphrodisiac; in honey for coughs; for inflammation of the mucous membrane, etc.; and it is injected into the vagina, rectum, and bladder for catarrh, while the seeds are used as an astringent and in fumigation, *BMM.* 191). Linseed tea is used for catarrh, diarrhoea, and urinary trouble (*BMP.* No. 39). The use of the linseed poultice need hardly be mentioned (*P.* 729).

^{šam}KAT, *kitû* has long been known as providing a kind of cloth (*MA.* 455: Scheil, *RA.* 1921, 52, ii, 3, "flax or hemp"). Since ^{šam}*azallû* is "hemp" (*p.* 220) we can eliminate this as one possibility: indeed, it would hardly need more than the frequent connection of *kitû* with *lubulti birme*, equivalent to the "purple and fine linen" of the O.T., to settle the point (*AH.* 129: *BAG.* 152).

Various species of *Linum* are to be found in Palestine (*FJ.*² ii, 209), although Rich (*Koord.* i, 134) says that no hemp or flax is grown in Kurdistan.

The derivative *kitinnu* is presumed to be the Greek χιτών (*AF.* 37) (Arab. *kattân*, Syr. *kettânâ*): *cf. e.g.* "4 *mana* of *ki-tin-ni-e*, etc.", Strassm., *Nbn.* 460: "5 *mana* of *ki-tin-ni-e*," *ib.* 291.

2. *Išê^{vi} naš šipâti^{vi}*, "trees bearing wool," as King discovered, were introduced by Sennacherib about 694 B.C. into Assyria. King, *CT.* xxvi, vii, 56: *adi išê^{vi} naš šipâti^{vi}* "besides trees bearing wool", and *ib.* viii, 64, *iššu naš šipâti ibqumu imḥašu šubatiš* "trees bearing wool they clipped (and) beat for garments". King, *PSBA.* 1909, 341 refers this, almost certainly rightly, to *Gossypium arboreum*, "still met with in gardens in Egypt, Africa, Arabia, and India." He quotes Watt, *Wild and Cultivated Cotton Plants* 81 ff. and *EPI.* iv, 7 ff. and 43 ff. on this plant, and says that the tradition of the existence of this form of cotton in India may be traced back at least to 800 B.C., and quotes Herodotus as speaking of the cotton-tree in India in the fifth century B.C.

VI

ANTHEMIS, HELIOTROPE, LUPINS

ANTHEMIS, HELIOTROPE, LUPINS

- A. 1. *šam*ŠIT-GÁN, *qurban eqli*, *Anthemis nobilis* L. (and sim.), chamomile.
2. *šam*Kamti *eqli*.

1. *šam*ŠIT-GÁN, *qurban eqli*.

Pl. 20, K. 4216 + 4360, x-ix, 26-31 :

<i>šam</i> šá-[mi] <i>eqli</i> ¹	<i>šam</i> [<i>qurban eqli</i>]
<i>šam</i> <i>eqli</i>	<i>šam</i> <i>qurban</i> ² [<i>eqli</i>]
<i>šam</i>	<i>šam</i> <i>qurban eqli</i>
<i>šam</i> ni-bi-' <i>eqli</i> ³	<i>šam</i> <i>qir-ba-an eqli</i>
<i>šam</i> GURUN (<i>inib</i>) <i>eqli</i>	<i>šam</i> <i>qir-ba-an eqli</i>
<i>šam</i> zu-qí-qí-pa-a-nu	<i>šam</i> <i>qir-ba-an eqli</i>

From 108860, iii, 57 (CT. xxxvii, 31), the line preceding *šam*šá-mi GÁN = *šam*, we have *šam* ditto (= *šam**pušrušu*) *ut* (!)-liš *šam*ŠIT-[GÁN] (see p. 206). For the VM. text containing *šam**qurban eqli* see further, p. 119). Note one occurrence in Labat, *Comment. Ass.-Bab.* 24, No. 1, l. 6, ŠIT-GÁN = *qur-ban-nu eqli*.

It occurs in MT. thus :

(a) *šam*ŠIT-GÁN :

Head, bray with *Lathyrus* and fenugreek, bind on with rose-water, AM. 3, 5, 9 : (hair, probably), with alum, bray, anoint in cedar-oil,⁴ AM. 5, 1, 4 : for a man who has anointed himself with “*šamni la ta-ki* (if this is how it is to be read), and his head”, by itself in . . . , AM. 5, 2, 8.

(b) (*šam*)ŠIT *eqli* (A-ŠÀ).

Ext. : for sickness coming out on a man's foot (leg) and itching, bray with PA (tops) of *šam*MI-TAK and PA (tops) of *šam*ránu (prob. anise), and apply, AM. 74, iii, 12. For *šasašalli* (shoulders) hurting, dry, bray [† (?), apply in oil (?)], AM. 48, 4, r. 6, when a woman has been given noxious drugs to eat, and much water flows from her uterus, †, apply to her uterus on a cloth, KAR. 194, r. 4, 31 (ŠIT-A-ŠÁ-GA). Uncertain disease, bray, †, in beer and milk, apply, AM. 56, 1, r. 8, and the similar in beer and urine, apply, 94, 2, 9.

Enema : “When a man lies down to sleep, and sleep comes soundly upon him, and *ikašuš itar* . . . , pound with a testicle (root) of mandrake, mix in fat, make an *allamu* (suppository) . . . ” AM. 47, 1, 2.

Int. : *Strangury*, †, drink, AM. 59, 1, 37. *Jaundice* (? stomach), bray, drink alone in beer, Kū. iii, iv, 12. For stopping *šiqu* (prob. some form of heartburn),¹ alone, Pl. 36, K. 4187, 12 (the dup. KAR. 203, iv, 38, gives “seed of [*šam**qurban eqli*] to be drunk alone in asses' milk (dup. also

¹ Restored from No. 108860, iii, 58 (CT. xxxvii, 31).

² ŠIT.

³ ii, R. 11, e-f, 73 (also Haupt, ASKT. 45 ff. : Landsberger, *Ana Ittišu*, 14), MÁŠ-A-ŠÀ-GA = *ni-pi*.² [*eqli*].

⁴ This is obviously a dye. The upper part of the receipt is broken away, but the one following is for hair which has gone white in youth, and hence our text here shows that the Assyrian (like his more modern successor, especially in India) was prepared to dye his hair yellow, just as he would stain his hands and nails. *Anthemis tinctoria* L., used by dyers, is doubtless the species of chamomile which would be most efficacious, the alum, of course, providing the usual mordant.

The recipe for the same trouble, which immediately precedes this, prescribes lead, antimony, and saltpetre, obviously for a black dye (DACG. 119).

of D.T. 136, 18, *Pl.* 31), the other drugs (to be used separately) being: (a) *šamtakdananu* (b) *šamgiranu* (*p.* 351), (c) *šamandahšum* (lentils). *šamšit-gán* (!) is also drunk for a cough alone in oil and *kurunnu*-beer, *ib.* 27 (D.T. 136, 7 prescribes simple beer). It is uncertain if we should restore 81-2-4, 267 (*Pl.* 36) + 472 (*Pl.* 45) to [*šamqurban*] *egli*, a drug for *misir libbi*, "the shutting of the stomach". Note [*šamqurban*] *egli* RI-RI, *AM.* 104, 1, 15, like *šamdil-bat* RI-RI.

A species *šamšit-gán-sig* "yellow *qurban egli*" exists, described as *šammu* *KU ha-am-ti epiši* "drug for anus making a blister" (or similar, hæmorrhoids) (*KAR.* 203, r. iv, 19) to be mixed with fat and applied to the anus. The colour suggests that it is *A. tinctoria* L. (see *p.* 117) the "Golden Marguerite", or perhaps *Matricaria aurea* L. (also *bābūnāj* in Arabic) (used in infusion like Chamomile tea, *FCH.* 91).

I see no reason to change my previous identification with Chamomile (*AH.* 67). *šamqurban egli* "Gift of the Field" is strikingly similar to the Arabic *qurbayān* "chamomile" (*Anthemis deserti* Boiss., *FP.*² ii, 53; *FJ.*² i, 377). *šamNibi' egli* (*v. nipi' egli*, *MA.* 634, see *p.* 117, n. 3), "Shoot of the Field," and *šaminib egli*, "Fruit of the Field," are comparable to *χαμαίμηλον*, "Apple of the Ground." Still more simple is *šamša[mu] egli*, "Drug of the Field."

As for *šamzuqiqipānu* from *zuqaqipu*, if it should mean "Drug for a Scorpion", then we may compare the *VM.* text (*p.* 119) where *šamqurban egli* (*šamšit-gán*) is prescribed *ina qaran agrabi* "on the horn of a scorpion". It is, however, the *Heliotropium* which Pliny (*NH.* xxii, 29) recommends against scorpions.

The true chamomile is *Anthemis nobilis* L., which with *Matricaria Chamomilla* L., was seen at the oasis of Al-Ḥadhr (*FJ.*² i, 375). The *A. scariosa* D.C. (the Arabic *bābūnāj*), *A. pseudocotula* Boiss., and *Chamæmelum præcox* (M.B.) Vis., were seen near Qala'ah Sherghat (Herzfeld, *Beih.* 32). I have myself seen the ordinary wild chamomile carried in a basket on a boy's head at Mosul.

Medicinally, the flower-heads of *Mat. Chamomilla* L., the wild chamomile, with an aromatic smell similar to apples, are used as a tonic (*BMP.* No. 155), and among the Persians to-day the odour of the heads produces sleep (*IMP.* i, 695). The true chamomile (*BMP.* No. 154) is a stimulant, tonic, and anti-periodic, is used in flatulence, and as an emetic, while ext. it affords fomentations. Chamomile oil is used for rheumatism (*IMP.* i, 695). *LPG.* 105 has a long dissertation on their numerous uses (for hypochondria, hysteria, menstruation, intermittent fevers, indigestions, and the whole plant for cataplasms, notably on hæmorrhoids; it adds that the wild chamomile has been confused with the *matricaria*, and substituted for it). It is obvious that the uses in *MT.* and modern medicine are much the same.²

¹ Cf. *KAR.* 147, 25: "On the fifth day (of Tišri) he shall not eat fennel (or) *Lepidium*, (or) *šiqu* will overcome him" (cf. *AM.* 6, 6, 11, *šiqu isabat-su* 85, 1, r. 6, . . . *i-da m šī-qi-šū id* . . . : *VR.* 41, c-d, 49, . . . *si-gu* = *šī-i-qu*). The apparent connection between wind and bile suggest heartburn (or possibly hiccups) (see *AJSL.* 1930, 12, n.²). It might possibly be connected with the Heb. *[šūq]* Hiph'il "overflow", *Jo.* ii, 24. Chamomile is used for indigestion (*LPG.* 105).

² I doubt the translation of *šamqurban egli* in the OB. letter of *CT.* xxix, 7 (27780), as given by Ebeling, *RA.* 1913, 24. The text gives *šit-ū²* and *šamšit* respectively in two lines, the translation running: "Of the ten shekels of silver of which I spoke to thee, may this

2. In this connection may be included the plants *šamkamti-eqli* and *šamNUNUZ-eqli*. In the *VM.* we get the sequence :

1 <i>šamša-šu-[un-tu]</i>	<i>ina šarat laħri la pītiti</i>
2 <i>šamzūr GI-ZÚ-LUM-MA</i>	<i>ina qur-šib-tū eqli</i>
3 <i>šamel 4-lat eqli</i>	<i>ina i-šá-ri eqli</i>
2 <i>šamNUNUZ eqli</i>	<i>ina pi-i-ru</i> ⁵
<i>šamŠIT-GÁN</i> ⁶	<i>ina qaran aqrabi</i>
<i>šamkam-me GÁN</i> ⁶	<i>ina tak-zu-ni</i> ⁷

(*Pl.* 10, iii, 5-6 : *r.* vi, 1-4 : *Pl.* 28, K. 4140, A : *Pl.* 42, K. 14062, 1-4 : *Mat.* 88, ii, 20-5.)

A group which is reckoned as following *GI-ZÚ-LUM-MA* and preceding *šamkam-me eqli pišû* is given on *Pl.* 37, K. 4417, 21-3, and *Pl.* 38, K. 5424, B, iii, 6-8 :

<i>šamkam-ti eqli</i>	<i>šam</i>
<i>šamŠAR eqli</i>	<i>šam</i>
<i>šamŠAR eqli</i>	<i>šam</i>

To which may be added *VAT.* 9000 :

<i>šamŠAR eqli</i>	. . . . .
<i>šam</i> „	. . . . .
<i>šam</i> „	. . . . .
<i>šam(?)kam(?)-ti(?) eqli</i>	. . . . .

It will be noted that K. 4140, A, omits *šamNUNUZ eqli*, while *šamŠIT-GÁN* (*qurban eqli*) is common to all. On the other hand, the sequence is not the same, nor is there any actual equivalence for a possible pair. *šamkamti eqli* = *šamqurban eqli*. In the *šamhašarratu*-group (*spurge*, *p.* 148), *šamkamti eqli* = *hašarratu*.

The plant *šamNUNUZ eqli* would appear to mean "offspring of the field", borne out by *VM.*, *ina pîru*, where, as often happens in the *VM.* texts, the right-hand column almost repeats the plant of the left-hand column.

In *MT.* . . *kamti eqli* occurs in a lung-text, †, *AM.* 87, 6, 2.

To sum up this last group : there is little to prove that there are definite equivalences in among them, but there is obviously a close connection.⁸

money satisfy thee ; and of the five shekels, the rest of thy silver, may ŠRT-Ú⁹ satisfy thee, and when the *šamšrr* is before thee, thou wilt attain to twice thy money."

¹ See *šamšašuntû*, *p.* 268.

² K. 4140, A, omits this line ; see *GI-ZÚ-LUM-MA*, *p.* 209.

³ Line of uncertain meaning with a rare plant-name.

⁴ *Mat.* i.

⁵ See below on this page.

⁶ K. 14062, A-ŠA.

⁷ See *p.* 171.

⁸ [According to a rough note in the MS. here, the author would identify "the white kamme of the field" as truffle, a suggestion which he believed to have been anticipated by another scholar. Cf. Holma, *Kl. Beitr.* 74, and also *p.* 168.]

- B. 1. *šam*ŠI-ŠI, *im*hur-pāni, *Heliotropæum Europæum* Benth., heliotrope.
 2. *šam*ŠI-MAN, *im*hur-ašrā.
 3. *šam*TAR-MUŠ, *ararianu*, *Lupinus termis* Forsk., lupin.

1 and 2. *šam*ŠI-ŠI and *šam*ŠI-MAN :

(A) VAT. 9000 :

(a) <i>šam</i> i _p -šur li-[m]e ¹	<i>šam</i> ŠI-ŠI
(b) <i>šam</i> ŠAG ²	<i>šam</i> „
(c) <i>šam</i> GAL ²	<i>šam</i> „
(d) <i>šam</i> GU-LA	<i>šam</i> „
(e) <i>šam</i> DA—RA	<i>šam</i> „
(f) <i>šam</i> ŠIŠ—KUR	<i>šam</i> „
(g) <i>šam</i> TI-IS-KUR (or <i>ti-is-kur</i>)	<i>šam</i> „
(h) <i>šam</i> LUL-AZ	<i>šam</i> „
(i) <i>šam</i> šá-mu im ³ -ti	<i>šam</i> „
(j) <i>šam</i> KI-KU-GAR-RA	<i>šam</i> „
(k) <i>šam</i> ŠI-KU ⁴	<i>šam</i> „
(l) <i>šam</i> KUR-ĦAR-GÚN	<i>šam</i> „
(m) <i>šam</i> ? ? LIŠ (?)	<i>šam</i> „
(n) <i>šam</i> ŠAM-ŠAM	<i>šam</i> „
(o) <i>šam</i> KU-KU-KU	<i>šam</i> „
(p) <i>šam</i> KU-KU-KU-KU	<i>šam</i> „
(q) <i>šam</i> NAM-NAM-NAM	<i>šam</i> „
(r) <i>šam</i> AŠ ² -AŠ-ME-ME	<i>šam</i> „
(s) <i>šam</i> bu-šal-lí-bu	<i>šam</i> „
(t) <i>šam</i> tu-ru ² -ub-la	<i>šam</i> „
(u) <i>šam</i> ma-mit	<i>šam</i> „
(v) <i>šam</i> nap—hu	<i>šam</i> ŠI-MAN
(w) <i>šam</i> gè—' du	<i>šam</i> „
(x) <i>šam</i> bu-si-lí-bu	<i>šam</i> „
(y) <i>šam</i> si-ia-ú	<i>šam</i> „
(z) <i>šam</i> kur-kur(<i>kur-kur</i>)-ti(at)	<i>šam</i> „
(aa) <i>šam</i> BU	<i>šam</i> „
(bb) <i>šam</i> ŠI—KU	<i>šam</i> „
(cc) <i>šam</i> ŠIŠ—KUR	<i>šam</i> „
(dd) <i>šam</i> ir-ri(nu-ni) ĦA	<i>šam</i> „
(ee) <i>šam</i> šu-nu-qu	<i>šam</i> „
(ff) <i>šam</i> NIGIN-UR ₄ -UR ₄	<i>šam</i> „
(gg) <i>šam</i> tar ⁵ šir ₄ ⁵ -la-nu	<i>šam</i> „
(hh) <i>šam</i> BAD-ŠAL-DAN-TUR	<i>šam</i> ŠI—MAN
(ii) <i>šam</i> za—bi	<i>šam</i> „ ina Ħab-ḫi
(jj) <i>šam</i> šá(?) ⁶ -la-bi-la	<i>šam</i> „ ina Šu-ba-r[i]
(kk) <i>šam</i> ir-ri kalbi	<i>šam</i> „ ina Kat-mu-[h]i

¹ Or li-... [š]i.

² Not clear.

³ Might be *iḫ*, but the other would appear to be more satisfactory.

⁴ Hardly *šam* šī-ku, since "heartburn" is *šī-i-qu*, MA. 1096.

⁵ Not clear.

⁶ Perhaps a.

3. *šam*TAR-MUŠ :

(B) CT. xxxvii, 28, i, 12, 108860 :

12. [<i>šam</i> a-ra-r]i-a-nu [<i>šam</i> TAR]-MUŠ - ²	<i>šam</i> TAR-MUŠ <i>šam</i> šá-mi SÍG-GA-ŠA ₅ -A <i>šam</i> TAR-MUŠ ina libbi NU me-i (?)
15. .. riše ^{pl} -šú kima <i>šam</i> ú-ru-še HA-GA ^{pl} kima <i>šam</i> -ri-im	

(C) Pl. 33, S. 796, 6 (probably) :

[*šam*a-ra-ri-a]-nu | *šam*TAR-M[UŠ]

(D) Pl. 46, Rm. ii, 203, rev. :

7. <i>šam</i> a-ra-ri-a-nu	<i>šam</i> a-r[u(?)]-šú(?)
<i>šam</i> šá-mu mat-qu	<i>šam</i> „
<i>šam</i> a-ra-ri-a-nu	<i>šam</i> muš(?) - . . .

(E) VAT. 9000 :

<i>šam</i> a-ra-nu	<i>šam</i> TAR-ĦU ¹
<i>šam</i> TAR-ĦU	<i>šam</i> šá-mu ni (?) . . .

Note the following in the VM. :

<i>šam</i> saḥ-lu-ú	ina IÀ ŠAĦ-PAR šá DAR bal-lu
<i>šam</i> TAR-MUŠ	ina „ bir-miš „

(Pl. 44, i-ii, 10-11)

and compare the variant Mat. 88, i, 36 and 38 :

[<i>šam</i> ZAG-ĦI]-LI-ŠAR	ina IÀ ŠÁĦ-UŠ šá DIR ŠÁR-ŠÁR
<i>šam</i> TAR-MUŠ	ina IÀ ŠÁĦ-PAR šá DIR ŠÁR-ŠÁR

paralleled in Mat. 88, ii, 14 :

<i>šam</i> saḥ(?) - la-a-nu	ina IÀ UR-MAĦ-UŠ šá DIR ŠÁR-ŠÁR
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for which Pl. 42, K. 274, 30 gives (restored from Meek, RA. 1920, 181) :

(<i>šam</i>)(<i>šam</i>)saḥ-[L]a-a-nu	ina ZAL-LU UR-KU šá . . .
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Obviously there is some discrepancy in the texts ; e.g. in the latter case we have IÀ of “ male lion ” quoted against ZAL-LU of “ dog ” ; and hence this may explain why *šam*TAR-MUŠ in one case is to be mixed with “ fat of a white pig mixed with red ” (DIR, and DAR, Deimel, No. 113, 12), or “ fat of a white pig mixed with two colours ” (bir-miš = DAR, Deimel, No. 114, 5).

*šam*Ararianu occurs in VM. thus : (“ in the spittle of a dog ”) :*šam*a-ra-ri-a-nu | ina ru'ut kalbi

(Pl. 10, r. 8 : Pl. 28, K. 4140, A, ii, 10 : Mat. 88, 2, 29)

It is separated from *šam*TAR-MUŠ by a gap of about 75 entries.

In MT. these plants occur thus :

¹ There would seem to be every probability that ĦU has the value MUŠ in this word. ĦU has the value MUŠEN and it will be seen that *šam*TAR-ĦU is used in MT. where *šam*TAR-MUŠ is usually found.

(1) *šamImhur-pāni*, *šamimhur-ašrā*, and *šamTAR-MUŠ*, each separately :

(a) *šamImhur-pāni*: *ext.* Head, alone, *AM.* 5, 2, 7: probably for *guraštu* (itch), alone, bray, anoint, *AM.* 17, 1, 4. *Eyes*, (*šamim-hur-pāni*) alone in *himetu-ghee*, [anoint], *AM.* 13, 7, 6. *Scorpion-sting*, bray and apply in oil alone, *AM.* 91, 1, r. 12: *scorpion-sting*, on the "burning place" (*BIL*, cf. l. 22, for a burn), alone in *kurunnu-beer* in oil, *Pl.* 23, K. 9283, 15.

Int.: *Snake-bite*, drink alone in beer, *AM.* 92, 7, 8. *Strangury*, bray alone, drink in beer, *AM.* 59, 1, 30: drink in wine, alone, *KAR.* 203, i, 25. *Stomachic*, alone, drink in beer, *Kü.* i, ii, 9: alone in wine, *Kü.* ii, i, 17. For *ṭupl* (bowels), bray, drink alone in *kurunnu-beer*, *KAR.* 203, iv, 52. *Childbirth*, with uterine trouble, after application (?) to uterus of boiled cynoglossum and *Solanum*, the woman to drink *šamimhur-pāni* alone in wine, *KAR.* 195, r. 18. To stay *menses* (varying with *šamimhur-ašrā*, also alone), bray, drink alone in beer, *KAR.* 194, i, 37. *Himiṭ urri* ("heat of the day"), bray alone and drink in *kurunnu-beer*, *KAR.* 203, i, 58.

Suppository or enema: $\frac{1}{2}$ *qa* (perhaps without others) for some *anus-trouble*, *AM.* 50, 6, 13 + 95, 3, ii, 14 (*RA.* 1929, 75 (19)), read "by his anus thou shalt introduce" (*si-sá = ešēru*).

(b) *šamImhur-ašrā* (of this plant it is said that "it allows no poison to approach the body", Thureau-Dangin, *RA.* 1921, 169):

Ext. "Lassitude" ("poison and lassitude and shrinking of the flesh", which are mentioned in a collateral affection, suggest an indolent ulcer), anoint with *himetu-ghee* alone, *AM.* 52, 5, 12. Uncertain use, for a man bewitched, bray alone (*šamim-hur-aš-LA*), *AM.* 85, 1, ii, d.

Int.: *Jaundice*, drink alone in beer, *Kü.* iii, iii, 15: for *ṭupl* (bowels), bray and drink alone in *kurunnu-beer*, *KAR.* 203, iv, 53.

(c) *šamTAR-MUŠ*: *ext.*: *bad breath* (*bu'sānu*) probably alone, *AM.* 23, 1, 7.

Int.: for *ṭupl* (bowels), bray, drink alone in *kurunnu-beer*, *KAR.* 203, iv, 54.

(2) *šamImhur-pāni*, *šamimhur-ašrā*, and *šamTAR-MUŠ* together without others:

Int.: "If a man's epigastrium is drawn up (?), his middle (pelvis) (and) *minatu* (limbs) hurting him" [*šamTAR-MUŠ* (?) *šamimhur*]-*pāni šamimhur-ašrā* in squeezed grapes drink, [bathe] in water of *Vitex*, *AM.* 43, 6, 1: "anus-trouble," stomach, *šamTAR-UŠ* . . . , doubtless for *šamTAR-MUŠ*, with the other two, bray, drink in beer, *AM.* 57, 5, 10 (*dup.* 43, 5, 11-12). Uncertain affection, after elaborate poulticing, drink all three in oil, *AM.* 29, 5, 10.

(3) *šamImhur-pāni*, *šamimhur-ašrā*, and *šamTAR-MUŠ* with others. *Ext.*: *Eyes*, put on neck, *AM.* 14, 3, 4 (with *šamTAR-ḪU* in place of *šamTAR-MUŠ*). *Ears*, in wool, *AM.* 83, 1, 24. *Head*, bathe (perhaps all three drugs), *AM.* 4, 2, 3. *Bruise*, [anoint] in cedar-oil, *AM.* 77, 1, ii, 6. *Ghost* (perhaps all three drugs), *AM.* 96, 4, 4.

Int.: *Stomach*, pound and drink in beer, *AM.* 39, 1, 42: drink in *kurunnu-beer*, *AM.* 76, 1, 12, j: drink, *AM.* 42, 5, 5: 87, 1, 10. *Strangury*, *anus-trouble*, *AM.* 40, 5, iii, 20 (prob. 16): *strangury*, *AM.* 59, 1, 33, 35: 60, 1, 9 (perhaps all three drugs), 13 (ditto). For "middles" (pelvis)

AM. 52, 6, 6 (perhaps all three drugs). *Hand of Ghost*, in wine drink, *AM.* 97, 6, 2: with ^{šam}TAR-ĤU instead of ^{šam}TAR-MUŠ, pound, sift, drink in either wine or beer, *AM.* 76, 1, 8: with ^{šam}TAR-ĤU instead of ^{šam}TAR-MUŠ, *ib.* 17 (bray, drink in *kurunnu*-beer): ditto, *ib.* 20 and 24 (drink in beer), and prob. 27. *Hand of Ghost* (temples), drink in tamarisk-water, *AM.* 14, 5, 3 (probably all three drugs). *Sorcery*, drink in wine or beer, *AM.* 89, 1, 1 (perhaps all three drugs).

Fumigation: Ghost lying on a man, *AM.* 99, 3, 10 + 80, 6 (*dup.* *AM.* 33, 3, 13: *KAR.* 182, r. 14, and probably *AM.* 82, 4, 8).

(4) (a) ^{šam}*Imhur-pāni* with other drugs:

Ext.: Head, †, bathe in water and anoint, *AM.* 6, 5, 5. *Tooth* (KA-DIB-BI-DA), †, *AM.* 78, 1, 12: with anemone in *BI* . . (beer), *AM.* 23, 2, 8 (*dup.* 78, 1, 20). *Stomach*, †, in oil, anoint, *AM.* 52, 4, 4, *cf.* *KAR.* 157, 1 ff. *Scorpion-sting*, †, anoint in cedar-oil, *AM.* 91, 1, r. 8. *Pain*, †, in oil, *AM.* 16, 14, 13, *dup.* 55, 8, 4, and 64, 1, 22 (*RA.* 1929, 70). *Ghosts*, †, bind (AŠ-su), *AM.* 29, 1, 4, 5 (joins Col. iv of K. 2173, *CT.* xxiii, 22). *Hand of Ghost*, †, ointment, *AM.* 94, 2, ii, 14: *ghostly seizure*, with mustard, hellebore, and ^{šam}*imhur-ašrā*, bind on, hang on neck, *KAR.* 56, r. 11.

Int.: Too much saliva, †, *Afo.* i, 36, 10. *Strangury*, †, drink, *AM.* 59, 1, 15: drink in squeezed grapes, *ib.* 26. *Loins*, bad dreams, restlessness (= "choking of the passage", *i.e.* strangury), *AM.* 31, 1, 6 (+ 59, 1). *Impotence*, †, bray, sift, drink in wine for three days, *AM.* 88, 3, 4 (*cf.* *AM.* 66, 1, 11) (*cf.* Liebesz. 56, 1). *Hand of Ghost*, †, drink, in beer, *AM.* 76, 1, 23. To stay *menses*, with one other, drink in beer, *KAR.* 194, iv, 26. *Enema*: 7 grains with ^{šam}NU-LUĤ-ĤA (*Asa foetida*), bray and introduce by mouth and anus, *Kü.* 1, 1, 32.

(b) ^{šam}*Imhur-ašrā* with others:

Ext.: Ghosts, bind on (AŠ-su), *AM.* 29, 1, 4 (joins Col. iv, K. 2175, *CT.* xxiii, 22): *Seizure by Ghost*, with mustard, hellebore, and ^{šam}*imhur-pāni*, anoint, bind on, and hang on neck, *KAR.* 56, r. 11: against *Lamaštu*. †, see Thureau-Dangin, *RA.* 1921, 164, 10). *Weak beard*, rub cheeks, *CT.* xxiii, 36, 51.

Enema: AM. 53, 9, 10.

(c) ^{šam}TAR-MUŠ, with others:

Ext.: Eyes, with ^{šam}DIL-BAT in equal portions in *himetu*-ghee, *nigibtu*, *AM.* 8, 1, 32. *Ghost*, bind on (AŠ-su), *AM.* 29, 1, 5 (joins Col. iv, K. 2175, *CT.* xxiii, 22; anoint, *AM.* 97, 4, 14: *Hand of Ghost*, anoint in oil (v. cedar-oil) and hang on neck, *AM.* 95, 2, iii, 10.

Int.: Breast hurting, epigastrium pressing, lungs sick, with 6 others (perhaps including ^{šam}*imhur-pāni* and ^{šam}*imhur-ašrā*) drink, in beer or wine, *AM.* 48, 4, r. 9. *Stone*, drink in LÚ-TIN-NA-beer, *AM.* 89, 4, r. 3.

One *šū* in oil and cypress-oil with 17 others in small quantities, a "Royal Treasure" (*i.e.* a *Basilikon*), as enema, *AM.* 41, 1, iv, 26, definitely without ^{šam}*imhur-pāni* and ^{šam}*imhur-ašrā*.

Now, although we have many values given for ^{šam}ŠI-ŠI and ^{šam}ŠI-MAN in *VAT.* 9000, not one of these give us a satisfactory hint of what the (probably) correct reading of these plants is in Assyrian. For an early reading of the first element šī as *imhur* see Zimmern, *ZA.* 1914, 69: Landsberger, *ZDMG.* 1920, 445, and for the whole plant in both cases, *E.* xiii, 136, n.³, and Thureau-Dangin, *RA.* 1921, 164. They occur

actually spelt out in *MT.* thus : *šam-tar-muš*, *šam-im-hur-ši*, *šam-im-hur-aš-ra* (*AM.* 42, 5, 5-6) : *šam-im-hur-ši* alone (*AM.* 13, 7, 6 : 59, 1, 30) : *šam-im-hur-aš-ri*, *Pl.* 27, K. 8878, 8827, i, 2 (cf. Landsberger, *l.c.*).¹ Incorrectly, *šam-im-hur-aš-la*, *AM.* 85, 1, ii, d, see p. 122. The three are constantly used together, and *šam-im-hur-pāni* is used alongside *šam-im-hur-aš-rā* nearly half a hundred times out of its (approximately) 113 occurrences.

1. The first, *šam-im-hur-pāni*, "it-presented-the-face," is from its name some kind of Heliotrope which turns its face to the sun. I had thought in *AH.* 89 that it was more probably *Calendula officinalis* L., the marigold, rather than the Heliotrope proper ; but I am now inclined to see in it the *Heliotropæum Europæum* Benth. (which I saw at Mosul, kindly identified for me by Dr. Rendle). In modern medicine, Heliotrope (of which there are more than a dozen kinds quoted in *FP.*² ii, 220) is prescribed in India *int.* for snake-bite, and *ext.* as application thereon (*IMP.* 863, *H. Eichwaldi* Stend., like *H. undulatum* Vahl). *Int.* (*ib.* 864), for scorpion-sting, drunk and smeared on (*H. magna*, *Diosc.* iv, cxc), as also in India (leaves of *H. Eichwaldi* boiled in castor-oil said to relieve scorpion- or bee-stings, or the bite of a mad dog, *IMP.* ii, 863). *H. Eichwaldi* is also used in India as emetic, and for cleansing and healing ulcers (*ib.*). Again, *H. magna* (*Diosc. ib.*) prevents conception, and is used in fevers, as emmenagogue, and in childbirth : *H. strigosum* Willd. and *H. breviflorum* Wall are used in India as laxative, diuretic, for suppuration, and for sore eyes, gum-boils, and stings of nettles and insects (*IMP. ib.* ; *H. villosum*, in Palestine against a disease called *sammûqâ* (*FJ.* i, 297).

The uses are thus very numerous, and those given in *MT.* for *šam-ši-ši* (*im-hur-pāni*) coincide at least in its being drunk alone for snake-bite, childbirth, and strangury (it is used, however, to stay menses, not as emmenagogue), and *ext.* for scorpion-sting, itch, and eyes. At the same time there is no little similarity in the use of *Calendula*, the marigold, which "opens its face" during certain hours of the day. The flowers of this are the only parts used (*P.* 295) for sprains and bruises *ext.*, and *int.* for amenorrhœa : in the older medicine (*HS. ff.*) it was used for stings, bites, ear-trouble, sores, ulcers, bilious disorders, and menses. *IB.* 30 says of this (the *adriyûn*), that it is a plant which turns with the sun, and closes its flower during the night. *Calendula officinalis* L. was seen at Masjid-i-bardî (Shiraz) and *C. Persica* at Qala'ah Sherghat (Herzfeld, *Beih.* 35). Ainsworth (*T.* ii, 177) mentions the former in the Ḥadhr district.

The species of Heliotrope in Syria-Palestine are numerous, as are their Arabic names (see *FP.*² ii, 229 ff.). The Cuneiform names are equally numerous, but not always intelligible. For instance, *šamip-šur li-[m]e* may have a reference to *ši* in its value of "a thousand", as also has the word *lêmu* (*BAG.* 156), but "it freed a thousand" is hardly a reasonable name. *šam-šāmu imti* may be the right reading (*p.* 120, i) "drug for poison", i.e. snake or scorpion : *šam-bušallibu* looks much like *šambušilibu*, an equivalent for *šam-ši-man*, *ib.* z). *šam-Mamit* perhaps = "tabu-plant".

A curious equivalence is given in *BRP.* iv, 37, 6 (*JRAS.* 1924, 453), *šam-im-hur pāni kima GİR-PAD-DU NAM-LŪ-GĀL-LU* "like human bone".

šam-im-hur-pāni is used in *Maqlû* vii (see Scheil, *RA.* 1925, 155, r. 10), with a more than usually bad pun :

¹ *Ku.* i, iv, 52, quoted with a query by Landsberger, gives actually *šam-ḥar-ḥar*.

šamIm-hur-pāni li-im-ḥa-ša li-is-sa
 "May *imḥur-pāni* smite her cheek."

One interesting use of the *šamimḥur-pāni* shows that its characteristic of turning its face to the sun led to its adoption in sympathetic magic as a charm to induce a favourable glance towards the wearer: in *BBR*. No. 11 ff., 2 ff., and 14 ff. (cf. also No. 75-8, 15) a seer who, to scry for the king, is to bathe, anoint himself with *šamni BĀR-GA* (refined oil) in which *šamimḥur-pāni* has been put, put on clean clothes, etc. Obviously it has a scent, and *H. suaveolens*, being highly fragrant, would fit, while as *IB*. 30 says, *Calendula* has no smell.

Its synonym *šamTI-IS-KUR* or *šamti-is-kur* is obviously to be read thus from the bad pun in Thureau-Dangin, *RA*. 1921, 165, 20, *šamti-is-kur mu-sak-ki-ru šá pî-ki-na*.

2. *šamImḥur-ašrā*, apparently "it-presented-20", the second component being a translation of the sign *MAN*, and therefore presumably "20", although the form should be *ešrā* and not *ašra*.

The first indication of its identification is to be found in *BRP*. iv, 37, 7 (*JRAS*. 1924, 453): *šamimḥur-ašra kima šaruru* ^d*Ištar šaniš šamimḥur-ašra kima šam* ^d*Šamaš zîr-šu kima šigušti* "the *imḥur-ašra* is like the "brilliance of Ishtar", or the *imḥur-ašra* is like the *Anacyclus pyrethrum*, its seed like *šigušti*". *Anacyclus pyrethrum* may be described as having a yellow, daisy-like flower; the "brilliance of Ishtar" suggests the rayed star which is her emblem. While *šigušti* is uncertain, therefore, we may look for a yellow daisy-like flower, with great healing characteristics.

I am still inclined to think that my suggestion in *AH*. 91, that it might be the *Chrysanthemum segetum* L., or similar, is near the mark. Its yellow colour may be indicated by its use for jaundice, on the principle of the doctrine of signatures. The *Ch. coronarium* L. ("Goldblume"), called in Syriac 'ên tôrâ "ox-eye", and 'ên 'eghlâ "calf's eye" is similarly βούφθαλμον (*FJ*. 1, 370): the two Assyrian names *šamirri nîni* "fish-eye", and *šamirri kalbi* "dog's eye" (p. 120), parallel the Syriac: it is certainly similar to the *šamšî-šî*, since the names *šamšîš-KUR* and *šamšî-KU* are synonymous for both (p. 120, *ll. f, k, bb, cc*). Its name "It-presents-twenty" (if this be the translation) suggests its numerous petals. The *Ch. segetum* grows in Palestine in "enormous masses" (*FTP*. 10: cf. *FP*.² 1, 60. It has been supposed to be the *helichrysos* ("gold-sun") of Pliny (*NH*. xxvi, 55, n. 61: xxi, 96), but Pliny says that it grows in "shrubberies". He prescribes it as diuretic and emmenagogue, and drunk for the stings of serpents and pains in the loins, and used *ext.* for burns. The *C. coronarium* L. is said to be a tolerable substitute for chamomile (*IMP*. 695).

A curious pun (as it must be) occurs in Thureau-Dangin, *RA*. 1921, 165, 22, *šamšî-MAN šá la ú-gar-ra-bu ru-ḥi-e* which at once suggests that *šamqurban eqli* "chamomile" (p. 118) is a synonym of *šamšî-MAN*.

3. *šamTAR-MUŠ* has long been compared to the Arab. *tarmus*, the Jud.-Aram. *tûrmûsâ*, the Syr. *turm'sâ*, the Greek *θέππος*, *Lupinus termis* Forsk., *FJ*. ii, 454 (Fonahn, *OLZ*. 1907, 640). The equivalence *šamararianu* (although, as will have been seen from p. 121, there is just a slight doubt), which is to be compared to the Syr. 'âr'ârîná, *onobrychis* (*FJ*. ii, 466),

would make the value "lupins" practically certain. According to Löw, *Ar. Pfl.* 394, Chwolson, *Altbab. Lit.* 87, Anm., says that *trmšá*, "a kind of corn," was brought by an old Babylonian king from the land of the Ionians.

The lupin (horse-bean) is one of the Papilionaceæ, having its seeds in a pod. The seeds have been used in poultices, or in lotions and fomentations (*LPG.* 284). The white lupin (*BMM.* 278) is prescribed as stomachic, diuretic, anthelmintic, emmenagogue, and locally for bites and swollen glands; in ancient times the lupin was used in fomentations for ulcers, gangrene, etc., and for scabies in sheep, and internally as emmenagogue and to expel the foetus; the root was diuretic (*Diosc.* ii, cxxxii). It is eaten in Egypt, after being cooked in salt water (*FJ.* 461). *IB.*, s.v., gives numerous uses of this in medicine.

The description of it in (*B.*), p. 121, is apt: "*šam*TAR-MUŠ in . . . its heads like beans (*uruše*) . . . like fennel" (I am not clear what *HA-GA* means). Similarly the equivalence in (*D.*) *a-r[u(?)]-šu(?)* "beans" may be correct for the synonym *šamararianu*.

The Syr. *ar'arind*, *Onobrychis*, as *Hedysarum Onobrychis* L., is admirable in comparison with lupins, but that it is not the same exactly as *šam*TAR-MUŠ is clear from the interval between the two in the *VM.* (p. 121). So far as I know *šamararianu* occurs twice only in *MT.*, *Kü.* ii, iii, 10, where the editor has recognized a difficulty and has glossed it *šammirgirānu*: *Šumma libbu kamru-ma šī-šā]-GÁL-LA šamše-QA šī-šā-GÁL-LA šamTUR-še-KAM šī-šā-GÁL-LA šam-a-ra-ri-ia-nu* (glossed *šammir-gi-ra-a-nu*) . . . 90 (?) (= I-EŠ) *šamsi-kan-ni libbi mal-ma-liš tazak ina BI-LÚ-TIN-NA NU pa-tan išatti-ma ina KU-šú tešir-ma ibalut*.¹ That it occurs so rarely, and even then is in one case glossed, shows that it had little use in medicine, as we should expect of lupins.

šamšāmu matqu "sweet plant (drug)", another equivalent, will represent the word "sainfoin". It occurs in a ritual in which the plants mustard (for yellow), hellebore (for black), *šammu matqu* (for white?), *Asa foetida* (for brown), beetroot (for red), and cress (for green) are to be pounded (*KAR.* 73, 11).

BRP. iv, 37, 6 (*JRAS.* 1924, 453) gives a curious comparison, *šam*TAR-MUŠ: *ki-ma išid si-il-qa* "lupin: like the root of turnip". If it had meant the root of the lupin we should certainly have had this added exactly; but, on the other hand, the similarity between the lupins and turnips is apparently only in the boiling of them (see p. 51).

In (*B.*) l. 13 (p. 121), the group *šamša-mu šig-GA-ša₅-A* must surely be an abbreviation for *šamša-mu šig-GA-šu-ša₅-A* "the hairy plant", a good description of *L. termis* "silky-villous" (*FP.*² i, 298), but still better of *L. pilosus* Murr. "hirsute", or *L. hirsutus* L. "covered with spreading rusty hairs" (*ib.*). Indeed, the sainfoin (*Onobrychis vulgaris* = *Hedys. Onob.* L.) has stems which are covered with fine hairs (*EB.* xith ed., xxiii, 1010), "appressed hairy or glabrescent" (*FP.*³ i, 411).

¹ Note, in this connection, a Kassite medical document (Waschow, *MAOG.* x, 1, 35, ll. 33 ff. (after the note "drugs for *qiš libbi*", which may refer to a preceding group), *rišpat-ra-nam rišme-ir-gi-na-nu riša-ra-ri-ia-nu rišnam-ruq-qu rišū-la-nu* and cf. the tree *rišme-ar-gi-im*, Waterman, *Business Docum. Hamm.* No. 37, 9.

VII

PURGATIVES (ALOE, RICINUS, LICORICE)

PURGATIVES (ALOES, RICINUS, LICORICE)

A. *šamšiburu*, *Aloe vera* L., aloes.

CT. xxxvii, 28, 108860, i, 7-11 :

7. [šam mar-tu]	šamšī-bu-ru
[šam AD-KUN]	šam ditto
.....	šam ditto
[šam UR-NI]-BAD	šam ditto ina Šu-ba-ri
11. [šam UR-N]I-BAD	šam ditto ina māt Kat-mu-ḥi

VAT. 9000 :

šam mar-tu	šamšī-bu-ru
šam AD-KUN	šam „
šam UR-NI-BAD ¹	šam „
šamšī-bu-ru	[šam n]i-siq (or pik) ² dalti ²

Add here Pl. 35, 79-7-8, 187, obv. 9 ff. :

..... -nu	šam
..... „	šam
[šam UR]-NI-BAD	šam[„ ina Šu-ba-ri]
[šam UR]-NI-BAD	šam „ [ina māt Kat-mu-ḥi]
..... -IM	šam „ [ina]
..... -BI	šam „ ina
.....	šam „ ina Kaš-[si-i]
.....	šam „ ina Kaš-[si-i]
.....	šam „ „
.....	šam „ „
.....	šam „ „
.....	šam „ šā šadi(i)

šamšiburu,³ identified with the Syr. *šabhrā*, Arab. *šabr*, aloes. FP.² ii, 659 gives *Aloe vera* L. (Arab. *šabr murr* “bitter *šabr*”) as occurring in Baysan, Irbid to Buṣrah, Jaffa, and ‘Arish ut-Tih. P. 116 prescribes *A. Barbadensis* and *A. Socotrina* as purgative and emmenagogue, and Olivier, *Travels* i, 119, says that the aloes is used as a pessary to hasten conception.

In MT. *šamšiburu* is prescribed :

For *strangury*, †, [drink], AM. 59, 1, 36. *Stomach*, alone, drink in

¹ Not clear on tablet, but probable from the parallel above.

² Cf. VM., MAT. 88, ii, 28 ; Pl. 10, vi-v, 7 : Pl. 28, K. 4140, A. (ii), 9 ; *šī-bu-ru* | *ina ni-siq* (or *pik*) *dalti*.

³ I think that Meissner, ZA. 1894, 277, was right in doubting the equivalence of our word *šamšiburu*, with the similar *šamšibaru*. The omen “If the hair of his head stands erect like *šibari*” (Bezold, Cat. K. 3860, ii, 371) might perhaps suggest a comparison with Lane, Dict. s.v. *šabr*, “the leaves are like the sheaths of knives,” but Meissner’s quotation from K. 50, i, 29 shows that there is in reality no connection : *egla iḥarrar zēr-šu inašar iṣṣurē ukaššad šī-ba-ra i-di-ik-ki*, er soll das Feld beackern, sich um die Saat kümmern, die Vögel wegfangen und den *šibāru* aufsammeln (“und vernichten”) (see Landsberger, Ana Itiṣu, 54, 47, “er wird das Feld graben, seine Saat hüten, die Vögel vertreiben, das Unkraut jäten.” *Šibarum* occurs in a vocab., CT. xii, 15, 15.

sweet milk, *Kü.* iii, i, 35. Uncertain, but along with *šamgiranu*, *Ricinus*, *šamallumza*, etc., drink, *AM.* 22, 5, 7. In the form *šam marti*, drink alone in *kurunnu-beer*, Scheil, *RA.* 1916, 38, 18: cf. *KAR.* 203, i, 30 ("ditto in beer"). This last suggests that in *VAT.* 9000 it may be either "drug of bitterness" or "drug for bile".

The mention of it in Šubari, Katmuḥ, and the Kassite country indicates a popularity not shown in *MT.*, and the interesting piece of folklore in the description *šam nisik* ¹*dalti* "plant for the adornment (?) of a door" shows that the custom of hanging aloes over the door which obtains in Cairo (Lane, *Manners*, 263) goes back to very ancient times.

B. *šam*_{AG-PAR}, *šam*_{AT-KAN}, *šamšagabegalzu*, *Ricinus*, castor-oil.

(A) *Pls.* 22 + 32, K. 267 + 4180, B + 6069, vi-v, 43 ff.:

43. <i>šamšá-mu šalmu</i> ¹	<i>šam</i> [AT—KAN]
<i>šamdāmi širi šalmi</i>	<i>šam</i>
45. ² <i>šam</i> _{LUL—AZ}	<i>šam</i>
<i>šamšá-ga-bi-gal-zu</i> ³ <i>ut-liš</i>	ŠE-RÚ
[<i>šam</i>] <i>šá-ga-bi-gal-zu ut-liš</i>	ŠE-RÚ
	<i>šam</i>
[<i>šamšá</i>]- <i>ga-bi-gal-zu</i>	<i>šam</i>
50. [<i>šama</i> (?)]- <i>ar ši-lu-ur-gu</i>	<i>šam</i>
<i>šam</i>- <i>ti-gal-zu</i>	<i>šam</i>
[<i>šam</i> Š]I-IM-BUR	. . . . .
[<i>šam</i> Š]I-IM-BUR	. . . . .
.-BAR	

(B) Smith, *CT.* xxxvii, 32, No. 108860, iv, 15 ff.:

15. <i>šamšá-mu šalmu</i>	<i>šam</i> _{AT-K[AN]}
<i>šamšá-ga-be-gal-z[u]</i>	<i>šam</i> ditto <i>ina Elamti</i> ^{ki}
<i>šamḫu</i> ¹ - <i>šu</i>	<i>šam</i> ditto <i>ina Aḫ-la-me-e</i>
<i>šam</i> _{HI} . . (?) . . -BIR	<i>šam</i> ditto <i>ina māt Akkad</i> ^{ki}
<i>šam</i> _{AG—PAR}	<i>šam</i> _{AT—KAN}

(C) Smith, *CT.* xxxvii, 27, 108859, ii, 29-31:

29. <i>šam</i> _{LUL—AZ}	<i>šam</i> _{AG—PAR}
<i>šam</i>	<i>šam</i> _{ŠU}
<i>šam</i> „	<i>šam</i> _{UR} -[PI-PI (?)]
[<i>šic</i>]	

It occurs thus in *MT.*:

(a) *šam*_{AG-PAR}:

(1) *Simply: Ext.: Head*, itch, †, bray, [apply], *AM.* 5, 5, 4 (are we to supply the words "in oil", or are the drugs enough by themselves?).

¹ Cf. *CT.* xli, 43, No. 59596, r. 2, . . . MI(GIG): *šam*_{AG-PAR}.

² *šam*_{LUL-AZ} is given as = *šam* „ (i.e. *šamimḫur-pāni*), in *VAT.* 9000, which may have a parallel in S. 796, 9 (*Pl.* 33), *šam*_{LUL-AZ} (division mark), *šamimḫur-pāni*.

³ Note the three spellings, *šamšagabigalzu*, *šamšagabegalzu*, *šamsakabegalzu* (see p. 131).

For "dry" head and weak hair, †, in water bind on, *CT.* xxiii, 34, 23, *dup. KAR.* 202, 2, 14. *Temples*, bind on, *CT.* xxiii, 41, 17. *Head-lotion*, †, *AM.* 3, 5, 9. *Ears singing*, †, in cedar-oil on wool insert, *AM.* 33, 1, 24. *Feet* ("soles split") alone, dry, bray, bind on, *AM.* 75, 1, iv, 21: some trouble with feet, alone, bray, apply, *AM.* 74, iii, 4. "Swollen" *stomach*, †, anoint in oil, *AM.* 54, 4, 5. "Poison" of flesh (limbs), † (?), in oil of *Acorus calamus*, [apply], *AM.* 92, 4, 10 (*cf. obv.* 4, with *nigibtu* and others (?)) in cedar-oil anoint, see *RA.* 1930, 130). *Hand of Ghost*, †, anoint in oil, *AM.* 94, 2, ii, 12 (see *JRAS.* 1929, 806): anoint, †, *AM.* 97, 4, 3: anoint, †, in cedar-blood, *KAR.* 56, 7: †, bathe, *AM.* 94, 4, ii, 9. *Blains* (*šiggati*), †, *AM.* 32, 5, 10. *Swelling*, †, [apply], *AM.* 100, 3, 20: *poultice*, †, *AM.* 96, 1, 3. Ebeling, *MAOG.* v, 3, 5, with *šamimhur-pāni*, anoint a woman in ritual, in oil. Bruise (*dikši*), †, uncertain use, *AM.* 96, 1, 3.

Int.: Apparently foetor in *mouth*, alone, drink, *AM.* 36, 2, 10 + 26, 9, ii, 2 (*PRSM.* 1926, 65). *Eyes*, alone, after poultice, *AM.* 18, 2, 7 (joined to 16, 3 + 12, 3 + 13, 1 + 19, 6, *PRSM.* 1926, 40). *Stomach*, apparently alone, drink in beer, *AM.* 48, 1, 5: alone in *kurunnu*-beer, *AM.* 48, 3, 5 (*RA.* 1929, 78): †, *AM.* 45, 6, 13. *Heartburn*, †, drink, *AM.* 39, 1, 31, 36, 40: *AM.* 40, 1, 47 (*RA.* 1929, 49 ff.). "Congestion" of *lungs*, †, [drink], *AM.* 53, 4, 17 + 63, 6, 13 (*cf. Pl.* 48, *Rm.* 328, *r.* v, 3). *Urinary trouble*, †, drink either in squeezed grapes, or beer and refined (*halši*) oil, *KAR.* 193, 4. *Dysentery* ("when a man pours blood by his anus"), with styptics, [drink], *KAR.* 191, 2, 14. Some form of *jaundice*, with scammony (*hul* LI-TAR) and *šamPAR* (*šarbatu*-gum, nitre) drink in oil and beer, *Kü.* iii, iv, 3.

Enema: Quantity, 1 šú, †, perhaps enema, *AM.* 41, 1, iv, 26.

(2) *Seed*: Suppository with fat, †, *KAR.* 201, 43. As a *šam aši* (appetizer), *Pl.* 29, K. 4566, 11.

Pl. 48, *Rm.* 328, *r.* v, 9, gives it as one of nine drugs for ŠA-GIG, which can hardly be a pun on ŠA-GIG ("sick stomach") (stomach-ache); it looks rather like some definite, well-expressed stomach-trouble. The other eight drugs are *šamtar-HU*, *šamimhur-p[āni]*, [*šamimhur-ašra* (?)], root of *šamhalduppānu*, root of *šam* . . . , *šamRIM*, *šamhašhur ābi*, and *šamkaran šelibi*.

(b) *šamŠagabegalzu*, *šamŠagabigalzu*:

Sick *ṭuṇi* (bowels), bray and drink alone in wine, *KAR.* 203, iv-vi, 49. *Strangury*, †, in strong wine [or . . . , drink], *AM.* 59, 1, 36 (*šamša-ka-be-gal-zu*). Uncertain, †, drink, *AM.* 22, 5, 6.

(c) *šamAT-KAN*:

(1) *Simply*: *Ext.*: *Eyes*, probably, †, prob. *AM.* 14, 1, ii, 6. *Poultice*, for pelvis and buttocks with roast corn in beer-yeast and oil, *AM.* 61, 2, 11.

(2) *Seed*: *Ext.*: for obtaining offspring, bray alone, mix with . . . and beer-yeast, and put in uterus, *KAR.* 203, i-iii, 19.

Int.: Lungs, bray, "let his tongue take,"¹ drink alone in oil, *KAR.* 203, iv-vi, 25: *lungs* (?), †, drink, *AM.* 51, 7, 5 (+ 84, 2: see *RA.* 1934, 24).

(3) ŠE-RÚ: *Cough*, †, poultice, *AM.* 50, 3, 3.

Here, with several of these various synonyms (which altogether occur

[¹ See *RA.* XL. 109 ff.]

about sixty times in *AM.*) we have a drug used : (a) *simply*, (b) *seed*, and (c) *ŠE-RÚ*, the general employment being *ext.* for eyes, ears, head, sore foot-soles, itch in head, falling hair, swellings and blains, cough, and even by local application to the uterus to encourage conception : *int.*, to drink for bowels, strangury, stomach, heartburn, urinary trouble, and dysentery, and as enema and suppository. Particularly must its use in *AM.* 3, 5, 9 be noted : presumably after binding a mixture on the head, “*šam*_{AG-PAR} and *salicornia alkali* in warm water wash his head,” obviously a soap.

From this latter *šam*_{AG-PAR} is obviously the *Ricinus* (*AH.* 191). Pliny, *NH.* xxviii, 51, speaks of a soap made of tallow and ashes : in Palestine a soap of olive-oil and an alkali is made (Patrick, Hastings, *DB.* iv, 558). As the olive is by no means likely in Assyrian texts (*p.* 102) we must seek a substitute. *Ricinus* would exactly suit the contexts above, the only objection perhaps being that we have to understand that its oil is intended, without any definite statement to that effect. Not only are the medicinal uses coincident with those of *Ricinus*, but also the use of the inferior qualities produced from this plant in making soap (*BMP.* No. 237 : *FHP.*² 571).

The plant is common in Mesopotamia to-day. It is cultivated all over Kurdistan (Rich, *Koord.* i, 135) ; it occurs plentifully in Tripoli (Rauwolff i, 46) ; for its growth in Palestine see *FP.*² ii, 509.¹ It has been supposed to be a native of India, but *BMP.* (*ib.*) suggests that it has the appearance of a native plant of the Mediterranean region. The names for it in the various dialects are curiously different : Maspero (*Dawn of Civilization*, 54, *n.*²), while giving the well-known name in Egypt as *kiki* (*Hdt.* ii, 94), says that it was called (in Egypt) *saqnunu*, in Greek transcription *psagdas* (with the Egyptian article *p*), the simple form *sagdas* being found in Hesychius. *FJ.*² i, 608, gives the old Egyptian as *k3k3*, Gr. *kiki*, with the Egyptian *dkm* as the plant ; the Arab. is *hirwa*, the Heb. *qigáyôn*,² the Syr. *qerdā*, and the oldest Sanskrit *eranda* (*CPI.* 915). It is curious that we have no cognate in Assyrian to any of these.

The medical use of *Ricinus* in classical authors coincides well with our Assyrian drug ; *Diosc.* i, 38, prescribes it for scabies and inflammations of the fundament, obstructions of the uterus, suppurating wounds, pains in the ears, and as of use when added to poultices ; when drunk it is a purge, and ejects worms. Pliny (*NH.* xxiii, 41) recommends the oil for diseases of the joints, indurations, affections of the uterus and ears, and for burns, and the application of the leaves for erysipelas, *etc.* *IB.* 771 prescribes it for indurations, the leaf raw or boiled for gout, and the seed pounded on a hot stone for cataplasms. More modern usage recommends the fresh leaves for arthritis and gout, migraine and, when applied to the breasts, as a galactagogue, and as cataplasms in ophthalmia to the eyes (*LPG.* 390). In India, castor oil is prescribed for sore nipples, as enema, and for eyes (*BMI.* § 91). In Mesopotamia a century ago it was much

¹ *FCH.* 55 says that it cannot be called a popular medicine (in the Jordan valley where it grows wild).

² On this as comparable to the Assyrian *kukkanitum šar* see *AF.* 57. Pinches very properly thought *kukkanitum šar* as comparable to the Heb. *qigáyôn* “rather doubtful” (*Athenæum* 1883, 700). *JRAS.* 1924, 457 (*BRP.* 37, 25) shows that *šamarzanikkatu* = *šamkukkanitum*, the former perhaps meaning “from Arzanian” ; there is little means of showing its significance.

cultivated about Mosul, but not used as a purgative; indeed, Rich says he had never met any Oriental who knew this quality of the drug, but the oil was burnt and used for bruises (Rich, *Koord.* ii, 63). In Egypt "the fellahin of Upper Egypt and the Nubians still rub their bodies with the oil which they extract from the common castor-oil plant; it protects them from mosquitoes, and prevents their skin being cracked by the sun" (Maspero, *Dawn* 54). Warren R. Dawson, in *Ægyptus* 1929, 57 ff., discusses the Egyptian uses of *Ricinus*. It was used, among other purposes, for making hair grow (53), and its oil for anointing sores (*ib.*), and Pliny (xxiii, 41) speaks of its being used for itch.

The word ^{šam}AG-PAR suggests "the white AG", AG being (*D.* 97, 1) apparently "an edible fruit", which might well refer to the castor-oil berry. But the berry itself cannot be said to be definitely white, and if we are to translate PAR thus, the "white" might refer to the transparency of the oil, but even this is not convincing. There are, however, it may be said, two kinds of *Ricinus*, the Red and the White (*CPI.* 915), which might permit us, so far at least, to identify the ^{šam}AG-PAR with the latter.

The description "black drug (plant)" may perhaps refer to the undoubted dark colour of the leaves of the *Ricinus*.

^{šam}Bu'šu, "the stinking drug," certainly suggests the peculiarly unpleasant taste, so well known to all of us: indeed, Herodotus (ii, 94) speaks of its being "evil-smelling".

It is possible that ^{šam}terinu (*p.* 242) is a synonym.

C. (^{šam})(^{iš})ŠE-RÚ-A, šūšu, *Glycyrrhiza glabra* L., licorice.

^{iš}Šūšu was correctly identified by Kūchler (*Kū.* 66) with the Arab. *sūs*, *Glycyrrhiza glabra* β *violacea*, Boiss. Licorice grows in the Carchemish district (Middle Euphrates) and in S. Babylonia, in both of which districts I have seen it: Ainsworth mentions it (*T.* ii, 182) in the Jebel Maklub district, east of Mosul, in June. But the Sumerian ^{iš}ŠE-RÚ-A, with its numerous other values which have no special connection with licorice (*šerū*, *nīplu*, *zīqpu*, *šīlu*, *supalu*, *D.* 367, 126) does not suggest an early Sumerian origin for the plant, whereas Pliny (*NH.* xxii, ii, with Cilicia and Pontus) and Theophrastus (*EP.* ix, xiii, with Scythia) point to a more northern origin. ^{iš}SA-RÚ...?, ^{iš}ZA-SUH... and ^{iš}šu-ú-šu are also the equivalents of *šu-ú-šu* (Meissner, *MVAG.* 1913, 2, 28, 22-4), a text which elsewhere has already contained an equivalent for *šūšu*, *i.e.* ^{iš}ŠE-RÚ-A, *ib.* p. 16, 55. ZA-SUH (*DACG.* 91) is the base of the names for Vitriols, possibly here suggesting an association with the colour of licorice. It does not seem certain that ^{iš}ŠE-RÚ prescribed for excess of saliva (*AM.* 31, 4, 17) is licorice, which would have exactly a contrary effect: the juice, after the root has been chewed, acts on the salivary gland so as to remove thirst (*VK.* 319).

From this theory of a northern origin arises the interesting possibility, as suggested by Hehn, that in *šūšu* we have the same word as the German "süss", sweet. *Šūšu* has apparently no connection with any Semitic root; this "sweet Scythian root" of Theophrastes, along with the Greek γλυκύρριζα "sweet root" (*Diosc.*) and *radix dulcis* (Celsus, *FH.* 2, 156), an immigrant in a land where "sugar" was and still is represented by manna (indeed, the Sumerian for licorice, ^{šam}ŠE-RÚ-A has also the value *supalu* "manna"), suggests that we should see a foreign origin in this

word. If so, then (with Hehn) what more probable connection could be found than the Aryan "sweet", suadeo, ἡδύς, from the Skr. *svad*, *svād*, to taste, to eat, to please (Skeat, *Etym. Dict.*, 616), and ultimately the German *süss*? At what time the root came into Assyria is, of course, uncertain; all that can be said is that it was certainly in use before the end of the eighth century B.C. We might say that the Scythians were coming into contact with Assyria in the last quarter of this century, but it is proper to add that licorice almost certainly must have been well known there much earlier.

It occurs thus in *MT.* :

(1) *Simply*: *ext.*: *Childbirth*, †, bathe stomach, *KAR.* 195, 20. *Swelling*, while yet green, bray, bind on alone, *KAR.* 192, 38.

(2) *PA* (tops): *ext.*: *Feet*, †, [*ext.*], *AM.* 69, 7, 9: *feet* which cannot walk, †, *ext.*, *AM.* 68, 1, r. 9: probably sim., †, *AM.* 69, 2, 7. *Stomach*, †, poultice, *AM.* 39, 1, 1 + 79, 5, 1. *Swelling*, †, bind on "green", *AM.* 73, 1, 31 + 18, 5, 5: alone, bray, apply, *AM.* 74, 1, ii, 16. *Lassitude* (*rimutu*), †, bind on, *AM.* 52, 5, 14. *Anus-trouble*, †, *AM.* 58, 2, 7. *Poultice*, †, *AM.* 57, 6, 10: 83, 1, r. 25. Apply to affected place, †, *AM.* 74, 1, iii 5. *Venerical*, uncertain use, †, *AM.* 58, 6, 6, *dup.* *KAR.* 193, 23.

(3) *Root*: (various uses); skin trouble (*umsāti*),¹ †, without a me[al], in BÂR-GA-oil, uncertain use, *AM.* 17, 5, 5. Long diagnosis, †, *AM.* 22, 2, 12. "Poison," †, dry, pound, sift, fumigate, *AM.* 91, 1, 8.

Int.: *Stomach*, alone in water, drink, *Kü.* i, i, 8. *Jaundice*, alone, drink, *Kü.* iii, iii, 15. *Cough*, alone in *kurunnu*-beer, drink, *KAR.* 203, iv, 45: †, drink in beer, *Kü.* i, i, 1.

(4) *Seed*: To stay *menses*, with *Asa foetida* and pine-turpentine drink in beer, *KAR.* 194, iv, 4. *Swelling*, †, poultice, *AM.* 73, 1, 9.

(5) *Fruit*: †, anoint in cow's oil, *AM.* 88, 2, 10.

(6) Uncertain part: *Urinary trouble*, †, drink, *AM.* 66, 7, 21.

Theophrastus prescribes the root for asthma, dry cough, and pectoral diseases (*FHP.*² 179). Pliny's information is closely allied to that of the Assyrians: among its many uses (*NH.* xxii, 11) he says that the root when pounded is applied as a liniment for wounds; it is sprinkled on ulcerous sores of the mouth and films on the eyes; it heals excrescences of the bladder, pains in the kidneys, condylomata, and ulcerous sores of the genitals (doubtless some of these latter indicate an internal use): chewed and applied to wounds, it arrests hæmorrhage. Internally, the juice is good for the chest and liver, and some say that it expels calculi. He declares, however, that only the root is used. Syriac medicine (*SM.* ii, 56, 61, 679, 683) prescribes local application as in *MT.* *BMM.* 254 ff. says of *G. glabra* that it promotes secretion of the air passages, quenches thirst, is diuretic and emmenagogue.

Another word for licorice appears to be *šillibani* (see Behrens, *LSS.* ii, 1, 90); *ABL.* 19, 6, *ina muhhi karari ša šillibani*, and *ABL.* 391, r. 9, *pariktu lipriku* (let them rub vigorously). It is the Syr. *šulbānā*, dry root of the plant. Ebeling (*Tod.* 32, 16) reads "†[*abat ši*]bani nitik ubatēšu,

¹ *PRSM.* 1926, 51.

[Sü]ssholz [scheibet] das Tropfen seines Nasenschleimes", but it is doubtful.

To sum up : *šamšúšu* (Arab. *sūs*), which is conceivably connected with the Aryan words for "sweet", indicating its sweet root, *glycyrrhiza*, is certainly licorice. The use of its PA (tops), root, seed, and fruit in *MT*. indicates a more catholic employment than in other pharmacopœias, where the root appears to be the common part used. A second word, not used in *MT*., appears to be *šillibani*.

VIII

POISONOUS AND ALLIED PLANTS

POISONOUS AND ALLIED PLANTS

(ANEMONE, BUTTERCUP, DARNEL, SPURGE, BLACK AND WHITE
HELLEBORE)

- A. *šam*GI-RIM-DIR, *šam*ār kaspi, *šamar* huraši, *šam*nušabu, *Anemone pulsatilla*
L. (and other kinds), *Anemone*.
Pls. 19, 31, K. 4216 + 4360 + 4586, 3 ff. : 108860, iii, 1-9, Smith,
CT. xxxvii, 30 :

<i>šam</i> GI-RIM-DIR	<i>šam</i> ra-tu-ut-tu
<i>šam</i> GI-RIM-PAR	<i>šam</i> [ra]-tu-ut-tu
<i>šam</i> GI-RIM-DIR ¹	<i>šam</i> ār-ti-tu
2 <i>šam</i> bi(?) -ra(?) -tú egli	<i>šam</i> ār-ti-tu
2 <i>šam</i> GI-[RIM-DIR(?)]	<i>šam</i> a-a-ār kaspi (?)
<i>šam</i> a-a ³ ār kaspi	<i>šam</i> nu-ša-bu
<i>šam</i> a-ši-e	<i>šam</i> nu-ša-bu [ina Šu-ba-r]i (?)
10. ⁴ ki-la(?) -ār kaspi	<i>šam</i> nu-ša-bu [ina Su-ba-r]i (?)
⁵ <i>šam</i> a-a-ār hur[aši]	<i>šam</i> nu-ša-bu [ina Su-ba-r]i (?)
⁶ <i>šam</i> zi-im huraši	<i>šam</i> nušabu . . . ut pi

<i>šam</i> GUR ₉ ⁷ -DIR	<i>šam</i>
15. [<i>šam</i>]GUR ₉ -PAR	<i>šam</i>
[<i>šam</i> G]UR ₉ -GÍG	<i>šam</i>
[<i>šam</i> G]UR ₉ -GÍG	<i>šam</i>
<i>šam</i> zi-im kaspi	<i>šam</i> a-a-á[r kaspi] ⁸

Cf. 108859, CT. xxxvii, 26, ii, 19 :

êná¹¹ [sa-a-r]i (?) | a-a-ār huraši

and Pl. 40, K. 14051, 4 ff. :

[<i>šam</i> i (?)] um-ša-[tum]	.....
[<i>šam</i>]GIR : <i>šam</i> um-[ša-tum]	.....
<i>šam</i> GUR ₉ .....	.....
<i>šam</i> a-a-ār [huraši (?)]	.....
êná ¹¹ sa-a-[ri (?)]	.....
<i>šam</i> .....	.....
<i>šam</i> GUR ₉ .....	.....
<i>šam</i> .....	.....

¹ 108860, PAR-u : any sign following PAR in the previous line has been broken away, and the right-hand column is lost.

² 108860 omits this line.

³ 108860, ia.

⁴ Here 108860 reads *šam*ki(?) -šal-lum-zi = *šam*ditto.

⁵ 108860 uncertain.

⁶ 108860 for this line reads *šam*zi-im huraši ut-liš | *šam*nu-ša-bu . . .

⁷ *šam*GUR₉ simply = *illurum*, ii, R. 26, 4, a : D. 176, 8.

⁸ Pl. 35, K. 11424 contains some of these names, followed by a group *šam*bi-nu repeated five times.

It occurs thus in *MT.* :

(a) *šamNušabu*: *Ext.*: Tooth or mouth (KA-DIB-BI-DA), †, apply, *AM.* 23, 2, 8, 9, *dup. AM.* 78, 1, 20, 21. Probably for some form of retention of urine, "seventeen drugs (as) a bandage for the head [of the penis (?)]", ¹ *AM.* 60, 1, 6.

Int.: Stomach, †, drink (?), *KAR.* 183, 4. "Retention" (*hīniqti*, probably retention of urine), †, [drink], *AM.* 60, 1, 7, 9, 12: *AM.* 89, 4, 4, 10: *hīniqti* ELLAMSU (*Bab.* 1934, 119), "retention of the urethra," †, drink, *AM.* 59, 1, 33; 37. Some disease including trouble in the scrotum and urethra (*BIR birki-šu lu ša imitti lu ša šumeli* PA-su "the bag of his penis either right or left 'strikes' him"), "he is sick of KU-GIG (anus-trouble)," †, drink, *AM.* 40, 5, iii, 18. Stone, †, drink, Lutz, *AJSL.* 1919, 81, 76. Probably for ʾṭu (bowels), bray and [drink] alone in *kurunmu-beer*, *KAR.* 200, 7.

(b) *šamĀr kaspi* ("silver sheen"): *Int.*: Strangury, PA *ār kaspi* ša *šamnušabi* MU-NI "tops of *ār kaspi*, of which the name is *šamnušabu*", bray alone, drink in beer, *AM.* 59, 1, 32. It occurs also *AM.* 34, 3, 11. It is prob. intended in, e.g., some urinary trouble, alone in beer drink, Lutz, *AJSL.* 1919, 80, i, 8: †, introduced by a bronze tube up the urinary passage, and also drink, *ib.*, 81, 36 ff.: Stone, †, [drink], *ib.* 82, iii, 87. One of fifty-one drugs to free sorcery, *AM.* 87, 5, r. 10 (cf. K. 249, Boissier, *RS.* 1894, 142).

(c) *šamzim kaspi* ("brightness of silver"): *Int.*: Kidney, †, drink, *AM.* 39, 9, 2. It occurs *VM.*, *Pl.* 42, K. 4140, B, i-ii, 15: *Mat.* 88, i, 63:

šamzi-im kaspi | *ina ši-e* . . .

And *šamzir huraši* occurs also in *VM.* *Pl.* 42, *ib.* 16: *Mat.* 88, 1, 64:

šamzi-im huraši | *ina ši-mu-r[a](zi-e)*

(d) *šamĀr huraši*: one of fifty-one drugs to free sorcery, *AM.* 87, 5, r. 10 (cf. K. 249, Boissier, *RS.* 1894, 142). *VR.* 17, 2, 3, gives its equivalent as *nu-ḥa(ša)-ri* (Pinches, *ZK.* 1884, 345, made the correction from *ḥa* to *ša*, but *ri* apparently still stands).

(e) *šamI(l)luru sâmu* ("red calyx"): mentioned in a mythical description (*Tod.* 42, 9), "his blood is like *illuri sâmu*" (cf. *ib.* 35). In *MT. ext.* †, for head, *AM.* 6, 1, 2, 4.

(f) *šamGUR₉*, *šamilluru*, the simple *illuru*, calyx (without a colour-adjective), which perhaps should be included here. In *MT.* it is used *ext.*: Swelling, †, *KAR.* 192, ii, 4. Uncertain disease, anoint alone in oil, *KAR.* 204, 20. *Int.*: to stay menses, drink, *šamel-lu-ra* steeped in "dust from the *hīriš* of a wheel . . ." in *kurunmu-beer*, *KAR.* 194, 28: alone in beer, *ib.* 30. For a woman sick of NI-NE, †, bray, pour into the urinary

¹ GAR-LAL-SAG . . . This, as I tried to show in *Bab.* 1934, 129, if it is translated "a poultice for the head" does not coincide with the properties of the drugs which compose it. These drugs, in the main, are those drunk usually for retention (*hīniqti*), the word which occurs in similar prescriptions. I suggest that it means "drugs for binding the head (tip)", i.e. of the penis, that is, meaning that the urethra is "bound" and that these drugs are to loose it.

passage, *KAR.* 194, iv, 11. It occurs in omens (*DA.* 67, 26), "When *šam*GUR₉ appears in *usal nâri* . . ."

(g) *šam*GI-RIM-PAR ("white calyx"¹) is used in *VM. Pl.* 42, K. 4140, B, i-ii, 14 : *Pl.* 44, K. 4152, i, 38 ; *Mat.* 88, 1, approx. 62 :

*šam*GI-RIM-PAR | *ina išid* . . .

In the identification of this plant one of the important points is the large number of synonyms for it, indicating a very common native of Mesopotamia. These names are *šam*GI-RIM-DIR = "red calyx" : *šam*GI-RIM-PAR = "white calyx" : *šam*âr *kaspi* "silver sheen", *šam*âr *huraši* "golden sheen" (the *âr* being the same as the *âr* in the animal *âr ili* "sheen of god", the chameleon, which is capable of changing its colour in a magic way (see *PRSM.* 1926, 17 ; *DACG.* 169) : *šam*zim *kaspi* "silver brightness" : *šam*zim *huraši* "golden brightness" : *šam*i(l)*luru sâmu* "red calyx" (for *illuru* see *PRSM.* 1926, 53). *šam*Nuṣabu possibly connected with the Syr. *nešb'thâ* "plant", but hardly likely. *šam*GUR₉-DIR = *illuru sâmu* "red calyx", *šam*GUR₉-PAR = *illuru pišû* "white calyx" ; *šam*GUR₉-GIG = *illuru šalmu* "black (dark) calyx".² *šam ašê*, apparently called so in Šubari (but not certain ; normally *ašê* in this connection means either "appetizer" or "anodyne", but *šam ašê* may actually be a dialect name).

Probably the anemone (*AH.* 56) ; the clue lies in the descriptions. Its colours are "red", "white", "dark" (i.e. purple), and its names "sheen of silver", "sheen of gold", and "silver brilliance" show its peculiarities. Compare the description of the anemone in *PC.* ii, 11 : "White or purple, or scarlet, or even yellow blossoms. . . . As the species generally grow on open plains or in high, exposed situations, their feathery grains produce a singular shining appearance when waved by the breeze." Our words for colour fit admirably, and if we can see in *šam*ratuttu and *šam*artitu the cognates to the Syr. *r'thithâ* "trembling" (cf. the "Willow of Magan", *rutitu*, p. 292) the comparison is still further confirmed. The anemone is common throughout the Near East ; I have seen the scarlet anemone growing over a tract a hundred miles long in the spring on the route between Mosul and Nisibin. The colours of the anemones at Beirut are blue, violet, bright red, and "fiery" red, and on Carmel, purple (*FJ.* iii, 118) : in Syria-Palestine, white, scarlet, yellow, blue to purple (*FP.*² i, 5). The Arabic names are *sagîr*, *šaqā'iq*, *la'ib*, *la'ib*, and more especially, *A. coronaria* L. is *ḥammun al-darlah* (*ib.* 114 : *FP.*² i, 5) (the *Ranunculus asiaticus* being *šaqā'iq an-na'mān al-muḥnath*, at Qala'ah Sherghat, Herzfeld, *Beih.* 35). Cf. *FP.*² i, 5 ff. (*Anemone blanda* Schott et Ky., woods and rocky places in mountains).

The use of the anemone in medicine corresponds with *MT.* Pliny, *NH.* xxi, 94 prescribes it for pains and inflammation in the head, diseases of the uterus, stoppage of milk in women, and to promote menses. The root, when chewed, is good for toothache. The Magi, he says, recommend that it be gathered at the earliest moment in the year that it is seen, and

¹ GI-RIM = *illu[ru]*, *CT.* xi, 47, iii, 21.

² Compare *šam*GUR₉-SIG₇ ("yellow" or "green GUR") (p. 146).

certain words to be repeated to the effect that it is being gathered as a fever-remedy; it must then be wrapped in red cloth and kept in the shade until needed.

More modern usage is not so catholic; *P.* 972 says that *A. Pulsatilla* L. and *A. pratensis* L. have been tried for dysmenorrhœa, orchitis, and epididymitis, and herein we can see it in *MT.*, as a supposed remedy for orchitis in *AM.* 40, 5, iii, 18, the recipe for trouble in the scrotum. *IB.* 1329 says that it is used for dyeing the hair, against impetigo, cataract, and leprosy, and to cicatrize ulcers. Fernie (*HS.*) prescribes *A. pulsatilla* for swollen testicles, and *LPG.* 33 for paralysis, amenorrhœa, syphilis, eyes, and whooping cough.

B. ^{šam}GEŠTIN-LUL-A, *karan šelibī*, *Solanum nigrum* L., and/or *S. dulcamara* L.

It occurs in *MT.* thus:

(1) *Simply: ext.: Eyes*, †, bind on, *AM.* 12, 6, 4. *Feet*, †, bathe continuously, *AM.* 69, 2, 8. *Effects of wind* (blowing on face), bray, rub on alone in oil, *KAR.* 203, iv, 11. *Muscle of neck*, with *Cynoglossum*, anoint in oil, *AM.* 97, 4, 22. *Anus*, †, apply, *AM.* 53, 9, 10. *Bowels* (ṭṛ^{ṣṭ}) anoint alone in warm *himetu*-ghee, *KAR.* 203, iv, 51, *dup. Pl.* 37, Rm. 357, and *cf. Pl.* 36, K. 4187, 6. Prob. *strangury*, †, bandage head [of penis (?)], *AM.* 60, 1, 6. *Stomach* which holds heat, bind on alone, *AM.* 39, 1, 2 + 79, 5, 2. *Pustules*, rub [until] blood comes forth, *AM.* 7, 4, 19 (*cf.* 16). *Bruise*, with muscles exhibiting fluid, †, bind on, *KAR.* 197, 13.

Int.: Eyes with jaundice, drink alone in beer, *Kü.* iii, iv, 23. *Stone*, drink alone in LÚ-TIN-NA-beer, Lutz., *AJSL.* 1919, 81, iii, 72. *Strangury*, alone, dried and brayed in water, beer, and oil drink, *AM.* 59, 1, 31: one of about 40 drugs in strong wine or . . . , *ib.* 37. *Trouble in pelvis* after micturition, †, drink, *AM.* 60, 1, 24. *Difficult labour*, †, in LÚ-TIN-NA-beer drink, *AM.* 67, 1, iv, 6, *dup. KAR.* 196, iv, 21: drink alone in beer, *ib.* 14. *Stomach*, drink alone in beer, *Kü.* ii, i, 2. *Anus-trouble*, drink alone in beer, *AM.* 58, 2, 5. Prob. *chest or lungs*, eat and drink, †, *AM.* 83, 1, r. 13. *Hand of Ghost* (and heart-burn?), †, drink in *kurunnu*-beer, *AM.* 76, 1, 13. *Scorpion-sting*, drink alone in *kurunnu*-beer, *Pl.* 23, K. 9283, 14.

Enema, †, *AM.* 94, 2, 6.

[*Catheter*], reduce, bray alone, fill middle of penis for some form of urinary trouble, *AM.* 62, 1, ii, 2 and 11.

(2) *Seed: Strangury*, †, [drink], *AM.* 59, 1, 43. *Pustules*, †, bind on, *AM.* 7, 4, i, 16. Uncertain, †, 3 grains drink, *AM.* 90, 1, r. iii, 20.

(3) *Water: Eyes*, †, apply, *AM.* 11, 2, 28: "while yet green *tuhāsa*, its water in . . ." followed by a use of copper-dust, etc., *AM.* 15, 6, 5.

(4) *PA* (tops): *Stomach*, alone (?), drink in beer, *AM.* 48, 3, 2, and perhaps *PA* (alone) drink in beer, *ib.* 3.

(5) *Uncertain part: Gonorrhœa*, †, drink in beer, *AM.* 66, 7, 11. (There is a curious equivalence ^{šam}ḪAR-ḪAR = ^{šam}GEŠTIN-LUL-A, *Pl.* 22, viii-vii, 52.)

The ^{šam}*karan šelibī* "fox-grape" has long been properly identified with the Syr. 'enbai ta'lā, the Arab. 'inab al-dhi'b. This latter has at least two equivalents: (a) *Solanum nigrum* L. (*FP.*² ii. 379: *FJ.*² iii,

357), a specimen of which I brought from Mosul, this being kindly identified for me by Dr. A. B. Rendle, F.R.S. : and (b) *Solanum dulcamara* L., *IMP.* ii, 891 (so in the Indian bazaars, and to my recollection in Mesopotamia : the dried fruit is known in Bombay as *anab es-salib*, coming thither from Persia, *IMP.* ii, 892). We can discuss these two more fully :

(a) *S. nigrum* L. is a small annual plant about 1 foot to 18 inches high, with purple-black globular berries. Children have suffered by eating them, though they are sometimes harmless to adults (*HPP.* 117). *VK.* 552 says that the berries and leaves are equally poisonous, but that both Theophrastus and Dioscorides prescribe it for swollen glands, ulcers, eruptions on the skin, and eyes. In India the berries are considered tonic, diuretic, and useful in anasarca and heart diseases ; and are used in fever, diarrhoea, eye-diseases, and hydrophobia. The juice is used for chronic enlargement of the liver, as hydragogue cathartic and diuretic, for blood-spitting, piles, and dysentery. The syrup acts as expectorant and diaphoretic, and the Chinese use the juice of the leaves to alleviate pain in inflammation of the kidneys and bladder (*IMP.* ii, 890 : *BMM.* 455). It shares the name '*inab edh-dhīb*' in part of Mesopotamia at least with *S. villosum* Lam. (*Von. Opp.* ii, 381).

(b) *S. dulcamara* L., Bitter-sweet, with purple flowers and scarlet berries. The deleterious principle *Solanine*, found in all the species of *Solanum*, occurs in the stem and leaves of this plant, and the berries are very harmful (see *HPP.* 116). At the same time in India the dried fruit which comes from Persia is used as a diuretic, for syphilis, and for rheumatism (*IMP.* ii, 892). *LPG.* 188 says that the *Douce-amère* is recommended for convulsions, dysmenorrhœa, jaundice, chancres, rheumatism, skin-diseases, and dropsy, the leaves being used *ext.* for ulcers : " le suc des semences était jadis employé à la composition d'un fard, en honneur parmi les femmes de la Toscane, pour dissiper les taches de la peau ", and then adds " l'odeur de la Douce-amère attire les renards ". *BMP.* No. 190 says that it is reputed as a diuretic, diaphoretic, and an acro-narcotic poison in excessive doses, and is thought serviceable in chronic pulmonary catarrh, chronic rheumatism, some skin diseases, and cachectic cases. *P.* 480 describes an unofficial use of the dried young branches in cutaneous eruptions such as psoriasis and pityriasis.

A glance at the uses in *MT.* will show how difficult it is to say exactly whether *ṣamkaran šelibī* is one or other or both. It coincides with *S. dulcamara* in its use of seeds, *ra* (tops) and water, *ext.* for ulcers, for eyes, and what were probably the " taches de la peau " caused by wind on the face : and *int.* for strangury (as a diuretic), lungs (i.e. catarrh), and jaundice. But it is obvious that the *S. nigrum* is a very popular drug in the East, and the uses of the Assyrian drug in *MT.* coincide in prescriptions, *ext.* for eyes, pustules, muscles, rough skin, feet, bowels ; and *int.* to be drunk for jaundice, sting, heart-burn, strangury particularly, and gonorrhœa, stomach, and lungs, and its employment in enema and catheter.

C. *ṣamGI-RIM, ellib(p)u, Ranunculus bulbosus* L. buttercup.
Pls. 19 and 31, K. 4216 + 4360 + 4586, vii-viii, 19 ff. ¹ :

¹ Variants quoted from Smith, *CT.* xxxvii, 108860, iii, 10-17.

	šam ¹ a-a ² -ab akalê ³ i	šamel-li-bu
20.	šamšá-mu ³ tar-bu-u ⁴	šamel-li-bu ⁵
	šamen-su-u ⁶	šamel-li-bu ⁵
	šamel-li-bu	šam e-ri-mu
	šamel-li-bu ⁵	šamGI-RIM šá ¹ qišti ²
	šamšAR-i ³ TIR	šamGI-RIM
25.	šam ku-ra-aš-tu (?) ⁷	šamGI-RIM
	šam e-ri-mu ⁸	šamGI-RIM
	šam e-ri-mu	šamGI-RIM šá ¹ qišti ²
		[šá(?) in]bu-šú sámu
	šamGUR ₉ -SIG ₇	šama-a-ab a-ka-li
30.	šamma-az-ma-az	šamel-li-bu
	šam par-ka-di	šamel-li-bu
	šama-a-ba SA	šamel-li-bu
	šamšE-RÚ	[šamel-li]-bu

Now, although one line, l. 27, "calyx of the wood which has a red fruit" is against it, everything else points to this being the *Ranunculus bulbosus* L., the buttercup. Indeed, the reasons for this identification appear to me to be so striking that we may omit those other possible equivalences which I suggested in *AH.* 58, wherein I was perhaps led astray by attaching too much importance to the "red fruit" as affecting the whole group. I am disposed now to think that this is an insertion describing a plant somewhat different from the buttercup, although having certain similar properties: it is noticeable that in 108860 šamellibu is ascribed to this particular plant only "in common speech".

The section in this vocabulary previous to this, dealing with the anemone, describes its red, white, or dark calyx (*illuru*); here, in this present section, we have a yellow calyx (*illuru*) which at first sight can surely be nothing else than yellow flower of the *Ranunculus*. Indeed, the Assyrian botanist comes very near to the modern arrangement of botanists, who include the anemone among the Ranunculaceæ; in his case the association is due to the globe-like shape of the flower, with its yellow colour in striking contrast to that of the red, white, and dark (blue) anemones.

Several of his synonyms show his recognition of the poisonous properties of *R. bulbosus* or *R. acris* L., which modern botanists describe thus:

"These Common Buttercups have very powerful and acrid properties, . . . Taken internally, the juice or extract of *R. acris* causes an intense inflammation of the digestive organs; and if the quantity has been considerable it acts as a true acrid poison, followed by very serious

¹ iā.² mī.³ li.⁴ Ditto.⁵ ū.⁶ li.

⁷ Adds a horizontal line here, and for l. 27 reads šamel-li-bu ut-liš šamNIGIN-šAR inbu-šú sámu. It follows this with two lines only, in the rest of the register:

šam . . .-ME-ME
šamšE-RÚ ditto

šam šu-ū-ku
šamditto

results, and it may be, even death. . . . Specimens of the Field Buttercup (*R. acris*) . . . were subsequently [after more than a year in spirits of wine] given to a class of students in the University of Pennsylvania. A day or two afterwards an intense itching was felt by all who handled them, while the skin between the fingers became red and covered with minute pustules . . . If the fresh-bruised leaves be applied to the skin, a more or less active inflammation will follow, forming a true blister. Recourse was formerly had to this method in Norway and Scotland, where true cantharides was not procurable" (*HPP.* 35, 36). According to *LPG.* 386, *R. sceleratus* L. has the same effect, and is used ext. for rheumatism, gout, headache, and intermittent fevers.

Now all this can be traced in our section: (a) the "yellow calyx" in l. 29 is called "enemy of bread (eating, food)", just as *šamellibu* is in l. 19 (i.e. "the intense inflammation of the digestive organs"). (b) *šamellibu* is described as *šamšāmu tarbū* "a drug for (i.e. to make?) a swelling" (l. 20), which represents the blistering capacity of the Buttercup. (c) *šam ensū*, with which we may compare the Arab. *ḥamasa* "irritated". *Ranunculus sceleratus* L. is especially used by beggars to produce or maintain blisters or open sores to obtain sympathy (*IMP.* i, 6). (d) *šam erimu*, *erimu* being a well-known word for a skin-trouble (*Holma, Kl.B.* 7): Thureau-Dangin, *RA.* 1913, 77, gives GÜN-A = e-ri-mu, where the Sumerian GÜN may represent the different colour of the blistered skin, and A the water collected therein. This trouble is prescribed for in *AM.* 17, 6 + 18, 8 (*PRSM.* 1926, 51), ii, 4, the drugs being lost. The cognate is probably to be seen in the Syr. 'aram, *se collegit* (aqua) or perhaps in 'armā, *locus asper*, and hence *šam erimu* would appear to mean "a drug for a blister". (e) *šam ku-ra-aš-tu* (?) must surely represent "a drug for ringworm" (scab, sore, or itch), a feminine form of *kuraru* (cf. *Uratu*, *Uraštu*), a form of scab, especially in the head (*AM.* 2, 3, 4), treated with *Ammi*, *Lepidium*, and others in cedar-[oil], and *AM.* 5, 5, 5, and 10, *kurara*, in the head, while simple *kurara* can be removed by NAM-AŠ-UŠ-GUL, or by rubbing chamomile on the place, or by black alum, or by leek-seed, *Ricinus*, and *šalamtu*-plant together, *ib.* 5, 5, 2 ff. In one case (5, 5, 10) the head is to be shaved. *Pl.* 36, 81-2-4, 267, obv. 12-18, is a medical text for removing *kurari* (1), or *kurašti* (6), the drugs being lost (see also for this, *PRSM.* 1924, 10). (f) *Šam parkadi* (*maškadi*, see *DACG.* 190) represents some external disease, doubtless swelling or similar. (g) *šam A-a-ba sa* "enemy of the muscle", doubtless a drug producing some form of muscle restriction; the same phrase is used of *šam PA-PA-PA*, a form of opium (p. 227). (h) For *ma-az-ma-az* I can offer no explanation. (i) *šam GI-RIM* here is not marked by the adjective *arqu* "yellow, green", and consequently is kept distinct from the *šam GI-RIM arqu* "spurge" (p. 149); on the other hand *šam GUR₉-SIG₇*, "yellow calyx", is not so restricted (l. 29).

The *šam GI-RIM šá* ¹*qišti* [*šá(?)in*] *bu-šū šāmu* "GI-RIM of the wood, of which the fruit is red", should be easily identifiable, but I have nothing to suggest for it.¹

¹ *Tamus communis* L., bryony, is possible, but surely it would have been included among the vines.

šam Ellibu itself is used in *KAR.* 185, iii, 8, where it does not appear to have an outstandingly medical value. It is, however, described as *šam aši*, one of the drugs for pain (*Pl.* 29, K. 4566, 9; a slice of the corm of Buttercup (*R. bulbosus*) is used for toothache (*PP.* 27). The cognate in other Semitic languages is difficult to find.

Ainsworth (*T.* ii, 132) mentions the *R. asiaticus* in flower at Mosul in March, and also in the Hadhr district in April (*ib.* 176).

To sum up: we have in *šamellibu* a plant (following the anemone-section) defined as *šam*GUR₉-SIG₇ "yellow calyx", *šam*GI-RIM "flower on a (high) stalk", *šamerimu* "plant (to cause) skin-trouble", with various similar parallels. Of rare occurrence in Assyrian medical lists as *šam aši*, *Ranunculus* seems to fit it admirably.

D. *šam*ŠĀ-ŠAR-GU-LA, *dišu*, *dišarru* (= *Lolium temulentum* L., darnel). Langdon, *RA.* 1916, 33, 6-8, gives a composite of K. 9182 (*CT.* xiv, 33) + 79-7-8, 188 (*CT.* xviii, 21) and part variant of *Pl.* 4, ix-viii, 5-7, and *CT.* xi, 45, 17-19:

<i>šam</i> ŠĀ (ŠĀ-LAM-BI) ¹ -ŠAR	<i>šad</i> ² -da-ru	<i>el-meš-tum</i> ³
<i>šam</i> ŠĀ-ŠAR ⁴ -GU-LA	<i>i-me</i> ⁵ -iq ka-ru-ru	<i>di-šar-ru</i> : <i>di-šu</i>
<i>šam</i> ŠĀ-ŠAR-TUR-RA ⁶	<i>a-ra-ru-ú</i>	<i>áš-šul-tum</i>

with which *cf.* *Pl.* 28, K. 4345, vi-v, 14-18 (dup. *Pl.* 41, K. 8829, 3-6):

<i>šamlipî e-riš-ti</i>	<i>šamaš-šu-ul-tú</i>
<i>šam</i> ŠĀ-LAM-BI-TUR-RA	<i>šama-ra-ru-u</i>
<i>šam</i> šu-ul-tú	<i>šamsi-lam-mu</i>
<i>šam</i> šu-lu-tú	<i>šamsi-lam-mu</i>

which *Pl.* 41, K. 8829, prolongs in another section.

7. <i>šamlipî e-riš-ti</i>	<i>šampi-[šal-lu-ru]</i>
8. <i>šamme-ra-nu</i>	<i>šamu[l]-...</i>

CT. xli, 45, 7:

*šam*šu-ul-tum: *šam*áš-šu-ul-tum: (*šam*šĀ-*hi-r*[i]...). *Cf.* also with above the text on p. 223.

In these quotations, which have an echo of *šamararu* in *šamararú*, and the *šultu*-group, I think that we must see drugs which are in some measure similar to, but distinct from, opium. *Dišu* and *dišarru*, to begin with (in spite of their more innocuous meaning of "grass" and "Ægilops") must be related to drugs with a similar effect to that of opium.

The original meaning of *dišu* is that of the Heb. *děšē*. *Cf.* p. 3, where *dišu* occurs in the lists immediately after *šammu*, written with the Sumerian

¹ *Pl.* 4 omits this gloss. *šam*ŠĀ-LAM-BI = *šam*ni-... , *Pl.* 46, Rm. ii, 203, r. 8.

² *CT.* xi, 45, 17, *ša*.

³ Occurs in a list, Scheil, *RA.* 1921, 5 (no equivalent given).

⁴ *Pl.* 4, ,,.

⁵ *CT.* xi, 45, 18, *mi*.

⁶ *Pl.* 4, ,, TUR-DA.

character SULLIM. Meissner (*AJSL*. 1931, 189) says: "*dišu* bedeutet 'Gras' sowie jede 'Futterpflanze', wie seine Synonyma *dišarru*. . . Thureau-Dangin, *ML*. vi, Nr. 16, Rs. 50, wiederfindet *di-iš eburi* 'das Sommerfutter wird bis zum Winter, und *di-iš kušši* das Winterfutter wird bis zum Sommer überreich sein'." He also quotes Zimmern, *BBR*. No. 100, 17: ("es kam hervor *di-i-šum* Gras, es ist reichlich Überfluss, es spriesst das Samen"), *CT*. xxxix, 12, 13 ("Wenn im unteren Teile der Stadt (*šam*) *di-šum* Gras zu sehen ist"), and *VAT*. 10143, vi, 46 ("*di-šu* = ditto, d.i. *šam-mu*"). He recognized *dišarru* as the equivalent of the Syr. *dūš'rá*, *Ægilops*.

But *dišu* and *dišarru* (inasmuch as they are represented by *šamšā-šAR-GU-LA*, very different from *šam*SULLIM for *šamdišu*) must mean something more than mere grass; *šamšā-šAR* "heart-plant", suggests at once a narcotic. For this reason we can see a more sinister side of *dišu* (?) appearing in *KAR*. 203, r. iv-vi, 41 (which must surely read *šam*SULLIM and not *šam*MAH). "(If) *dišu* (?) grass is plentiful,¹ there will be harm to cattle," and in *HC*. 37, 229, *ina diše u ḥabburi šurušat tamirtu* "with *diše* and *ḥabburi* (see p. 96) the land round about was sown", i.e. like the enemy in the New Testament, who used darnel. Here, therefore, we find a clue to a more exact meaning for *dišarru*: *IB*. 969 says of the Arabic *dūsrā* that it is like wheat, and that it is mixed with wheat and given the name *zawān*, which is properly darnel "which intoxicates and is called *denka*".

*šam*Dišu occurs rarely in *MT*., but certainly in two instances where *Lolium temulentum*, darnel, could be used. *šam*Di-šu is to be "reduced", brayed, and mixed in human urine (*AM*. 84, 4, r. iii, 6): *ana NA ša epir-ili malū šammu damqu eli epir-ili* "for a man full of Dust-of-God,² a good drug on the 'Dust-of-God'". This tablet deals with leprosy or scab: Col. iii, 9 *enuna ina zumur NA pi-in-du-ú pišū ša ga-ra-bu i-qab-bu-[u]* "When on the body of a man white (dry) *pindū*, which they call *garabu* (scab, itch)". (*šam*Di-šum is used also, *ib*. l. 2: *šamdi-šu*, 53, 1, iii, 8). Culpeper (1814), 110, says that the darnel is not without some vices, but has many virtues: its meal stays gangrene and sores, and with salt and radish roots it cleans the skin of leprosy, etc.; with water and honey it is used to bathe sciatica. Paulus Ægineta ii, 109 (Francis Adams, *Simples* iii) prescribed cataplasms of flower of tares and liquid alum and other components for ulcers.

But besides this beneficent external use of *Lolium temulentum* we have to consider its very deleterious effects internally. It is well known as a narcotic, with effects resembling intoxication, and when mixed with flour and made into bread it has been known to produce headache, giddiness, somnolence, delirium, convulsions, paralysis, and even death (*PP*. 179: *PC*. xiv, 1839, 99). Abu Hanifa (in *IB*. 1370) says that its grain has nothing harmful in it, but others in the same editor's work do not agree. Forskål (*F.Æg*. 199) says *ziwān* (tares): "*Zizania Aleppensis* notissima inter *Triticum* viget. Si semina restant farinae mixta, hominem

¹ Cf. *TR*. ii, 59, or Gadd, *CT*. xxxix, 8, 9, for the word *a-tār*, varying with *a-tir*, Nötscher, Die Omen Serie *š. alu* (*Orientalia*, 1929, 107) reads *alir* "welk(?)ist".

² "Dust-of-God," unknown to me outside these passages, is obviously some form of scaly skin-disease (e.g. ichthyosis) or leprosy.

reddunt ex panis esu temulentum. Messores plantam non separant; sed post triturationem Vanni aut Cribri ope semina rejiciunt." For *šī'lam* (similar meaning, see below and p. 56, *šilammu*, Syr. *šailmā*) he says (*ib.*): "Etiam agri vitium; a priore tamen diversa species. Decocto plantae obtunduntur sensus hominis, qui operationem Chirurgicam subire debet; Avicenna sic referente."

Here, then, we reach a group of narcotic plants proper, marked by *šam*ŠĀ-ŠAR "heart-plant". *šam*ŠĀ-ŠAR-GU-LA (GU-LA apparently meaning "great"), equivalent to *dišu* and *dišarru*, has also the value *imiḳ karuru*, in which latter word, *karuru*, we have the root *karāru*, which seems to have the meaning "to go round", the Heb. *kārar*, orig. perhaps move around, then surround, enclose, recur (Briggs-Driver, *Dict.*, s.v.): *kikkār* "a round": Arab. *karr* "return, repeat". The Assyrian *kurara* must be "ringworm" (*KAR.* 202, i, 49: *AM.* 2, 3, 4: *Pl.* 36, 81-2-4, 267, obv. 12 ff.: rather than "itch", *PRSM.* 1924, 10). Allied words would appear to be *gurgurru* "cable", and *qarara ša mé* "eddies" (*DACG.* xviii). If we may see "vertigo" in *karuru*, and some general word for "strong" in *imiḳ*, the connection with darnel is obvious.

Still further, we can see in its neighbour *šam*šilammu, the Arab. *šīlam*, and the Syr. *šailmā*, *Lolium temulentum*.

Lipī rišti, *lipī šamšulti* (p. 223), *lipī abikti* (p. 223), various "fats", represent the inspissated milky juice of opium. *Rišti* here might at first sight appear to be the same as the Heb. *rōš*, "poison," but the variant form *šam*lipī *erīšti* (paralleled by *lipī šulti* and *lipī šamšulti*) would seem to be the better. *šam*Lipī *erīšti* as *pī[šalluru]* (= *lipī abikti*), "fat of corruption", represents the white maggot. The synonym for *lipī rišti*, *kabarti qadiš[ti]* "swelling of the harlot" (p. 223), having regard to the white inspissation, suggests *leucorrhœa*.

*šam*Uššultu, obviously another form (*Pl.* 43, S. 60, ix-vii, 8,¹ dup. *KAR.* 203, r. iv-vi, 30) is used alone as "*šam šērēp¹ ša ri-qi-ta išū¹* (: *ina kurunni si-ki-ru ina šamni tapašaš*, i.e. a drug for flesh which has spots (Aram. *reḡō'ā* "spotted"), "in warm (*sikiru*) *kurunnu*-beer anoint in oil." In this receipt we are safe in considering the drug almost certainly darnel.

A form *šuluttu* occurs (*KAR.* 157, 4) in an enema, †, but whether it is to be referred here is uncertain.

E. *šam*GI-RIM SIG₇, *šam*ḥasarratu, *Euphorbia helioscopia* L., spurge. *Pl.* 18, K. 4354, i-ii:

<i>šam</i> a-ṭir-tum	<i>šam</i> ḥa-sa-ar-ra-[tum]
<i>šam</i> GI-RIM—SIG ₇	<i>šam</i> ḥa-sa-ar-ra-tum
<i>šam</i> a-ra-an-tum	<i>šam</i> ḥa-sa-ar-ra-tum
20. <i>šam</i> kam-ti eqli	<i>šam</i> ḥa-sa-ar-ra-tum
<i>šam</i> a-nu-nu-tum	<i>šam</i> ḥa-sa-ar-ra-tum
2 <i>šam</i> -atir: <i>šam</i> a-ṭir-tú	<i>šam</i> ḥa-sa-ar-ra-tum
<i>šam</i> kašī ŠAR(?) <i>am</i> -ḥa-ra	<i>šam</i> a-tú(pir)(-)ar-tum ³
<i>šam</i> lu-lu-tú	<i>šam</i> a-ra-an-tú
25. <i>šam</i> kam-ti ereši	<i>šam</i> ka-si ú(šam) . . ⁴
<i>šam</i> am-ḥa-ra	<i>šam</i> ka-su-ú(šam) . .

¹ Re-examined on S. 60 (correct). *KAR.* has *šik* for *qi*.

² For footnotes 2, 3, and 4 see page 149.

Pl. 35, K. 271 :

<i>šam</i> a- <i>tîr</i> (<i>târ</i>)- <i>tum</i>	[<i>šam</i>] <i>ha-sa-ar-ra-tum</i>]
<i>šam</i> a- <i>tîr</i> (<i>târ</i>)	[<i>šam</i> ,]
<i>šam</i> GI-RIM-SIG ₇	[<i>šam</i> ,]
5. <i>šam</i> a- <i>ra-an-tum</i>	<i>šam</i> [,]
<i>šam</i> <i>kam-ti eqli</i>	<i>šam</i> [,]
<i>šam</i> a- <i>nu-nu-tû</i>	<i>šam</i> [,]
<i>šam</i> <i>kasî ŠAR am-ḥa-ra</i>	<i>šam</i> a-[<i>tû</i> (<i>pîr</i>)(-) <i>ar-tum</i>]
<i>zir šam</i> a- <i>tîr</i> (<i>târ</i>)	<i>zir šam</i>

Pl. 43, Bu. 89-4-26, 112, i-ii :

10.	<i>šam</i> <i>ha-sîr-ra-tum</i> ¹
.	<i>šam</i> ,
.	<i>šam</i> ,
.	<i>šam</i> ,
.	<i>šam</i> <i>ka-sî-i</i>

This plant is distinct from *šam*a*tîrti eqli*, *Lathyrus* (p. 91).

*šam*GI-RIM-SIG₇ "green calyx", *šam**kamti* ² *eqli* (= "*kamti* of the field") and *šam**kamti ereši* ("*kamti* of cultivation"), suggest the spurge, *Euphorbia helioscopia* L., a common weed with green flowers and acrid milky juice, growing in cultivated and waste places in W. Asia (Bentham, *HBK.* 458: *HPP.* 148): at Qala'ah Sherghat (Herzfeld, *Beih.* 32): *E. Gaillardotii* Boiss. et Bl. Boissier, between Nisibin and Mosul ("*boḳle safrâ*", "yellow b.", *Von Opp.* ii, 387). I saw great tracts of milkwort from the train in N. Syria, and certainly one species in March in Tripoli (Syria), called locally *ḥilebi* "milkwort". The juice is poisonous, and this accounts for its rare use in *MT.*

This is philologically confirmed by the similarity of *šam**ḥasarattu* to the Arab. "chorræsch" of Forskål (*Flora*, cxii), *E. inarticulata minor*, and *ḥurrêš*, *E. antiquorum* (β) *minor*, *inarticulata* (ib. 94), and in the Arabic of India "*hîrruseeh*" (*E. helioscopia*, *IMP.* ii, 1132). Cf. the Syr. *ḥ^esar*, *injuria affecit*.

*šam**Aṭirtum*, *šam*a*tîr*, possibly the Heb. (const.) 'aṭērêth "crown", in reference to the broad leafy head. In the *VM.* (Pl. 44, i-ii, 9: *Mat.* 88, 1, 34) we get

² *Mat.* 86, 12, 6, gives a-*tîr* . . . ŠAR = a-*tîr-tum* = ḥa-sa-ra-a-[*tum*].

³ Cf. Pl. 33, K. 9182, 5 + *CT.* xviii, 21, 79-7-8, 188, *šam**kasî* ŠAR (*am-ḥa-ra*) = a-*tîr-tum* = ḥa-sa-ra-rat (cf. Langdon, *RA.* 1916, 33, but reading a-qa(?)*-ar-tum* for a-*tîr-tum*).

⁴ But read -i(?).

¹ Cf. *CT.* xxxvii, 108860, 32, iv, 47-8:

.-[<i>tu</i>] <i>m</i>	<i>šam</i> a- <i>ra</i> (!)- <i>an-tu</i>
.	<i>šam</i> <i>ḥa-sîr-ra-tu</i>

² This plant occurs also among the Chamomiles or similar, pp. 117f. *Kamtum* appears to be a synonym of *kartum* and *dašātum*, all meaning some form of oppression or want, so that "field-bane" would appear to be not far wrong. *Anunutu* would appear to be cognate to *anunu* "offence", etc.

*šam*aṭirtum | ina epir abulli kamiti (v. kamite)

and Pl. 42, K. 4140, B, i, 5 : Pl. 44, i, 29 : Mat. 88, i, 55 :

(^{is})(*šam*)anunutu | ina imduḥallatu

Pl. 10, 15 : Pl. 42, K. 4140, B, i, 12, 13 : Pl. 44, 36, 37 : Mat. 88, 1, 52 :

(^{is})(*šam*)GI-RIM-SIG₇ | ina amitti nāri arqi
*šam*GI-RIM-SIG₇ | ina šu-¹

It is not easy to see what these imply exactly.

*šam*Anunutu occurs in MT., †, uncertain use, KAR. 185, iii, 11, in a universal panacea (75 drugs), ext. KAR. 207, r. 7.

*šam*Lulutu occurs elsewhere with the adjective "red" (p. 225) for "poppy". Here we must have a reference to the globe-like head of both flowers, cognate to the Arabic *lūlū* "pearl" it being "(green) lulutu" here, as contrasted with the "red lulutu" poppy. It is possibly the same word as the *šam*lulumtum, applied to toothache (Pl. 23, K. 259, 4) (Pliny, NH. xxvi, 39, says that the seeds of the Tithymalos, milkwort, are inserted in hollow teeth with wax, and SM. ii, 188 prescribes : "Take the root of yathra, which is called tuthmalon" in wine or vinegar to be held in the mouth, for teeth. Lulumti-seed is to be drunk alone in kurunnu-beer, KAR. 200, 3 (evidently for "sick ṭu" (bowels), from l. 10. In India the seeds of the *Helioscopia* are used (with roasted pepper) for cholera, and the juice for neuralgia) IMP. 1132).

For *šam*amḥara, *šam*kašī šAR amḥara, *šam*amḥara kašī šAR, and kašū, see p. 148. *šam*Amḥara kašī šAR is prescribed for temples in squeezed grapejuice . . . , KAR. 188, 7. 1 qa of ash of (willow)-nitre with 1 qa of ash of *šam*amḥara is put into uterus, KAR. 194, iv, 9. *šam*Amḥara is also a drug for flies, to be brayed alone in some form of ḫimetu-ghee, and anointed, KAR. 203, iv, 13.

Langdon has a passage in *Le Poème Sum.* 196, 34, which might contain this plant : [LUGAL-MU *šam*]am-ḥa-ru MU-NA-AB-BI "[Mon roi pour la plante] cannellia a commandé", followed by "il coupera, il mangera . . .", showing that . . . am-ḥa-ru is edible.

F. *šam*RIM bu'šanu, *Helleborus orientalis* Lam. (or *H. niger* L., or *H. foetidus* L.), (black) hellebore.

VAT. 9000 :

(a) <i>šam</i> RIM	<i>šambu</i> '-šá-nu
(b) <i>šam</i> kalab(UR-KU)- ^a ME-ME	<i>šam</i> "
(c) <i>šam</i> qar—bu—ḫu	<i>šam</i> "
(d) <i>šam</i> KA—RIM	<i>šam</i> "
(e) <i>šam</i> AR-ME-DA	<i>šam</i> "
(f) <i>šam</i> a-ra-la-áš	<i>šam</i> "
(g) <i>šam</i> ar'-bu	<i>šam</i> "
(h) <i>šam</i> pi-ri-du-lu-uš	<i>šam</i> "
(i) <i>šam</i> bu'-šá-nu	<i>šam</i> RÚ—SIG ₅

Mat. 86, vii-ix, 15 :

*šam*RIM | bu'-šá-nu | kal-[bu ^a]ME-ME (?)

¹ Not in Mat. or on Pl. 10.

It occurs in *MT.* as *šambu-ša-nu* with *šam*^{AG-PAR} (*Ricinus*), etc., for a swelling, to be prepared in a pan in *himetu-ghee* and beer, [to be applied], *AM.* 100, 3, 20. Otherwise I do not know of it.

The identification rests on three points: *šam*^{RIM}, definitely meaning calyx, a flower something like the Buttercup: above all, its equivalent, *šambu-ša-nu* "foetid": and the value *qarbuḫū*. "Foetid" would at first sight suggest the Foetid Hellebore or, if not *Helleborus foetidus* L., the *H. niger*, which also emits a strong nauseous smell (*VK.* 546) and, as the "Christmas Rose", offers an admirable flower to coincide with *šam*^{RIM}; the third point, *šamqarbuḫū*, proves "Hellebore" philologically, by comparison with the Arab. *ḥarbaq*, the Syr. *ḥurbakhnā* "Hellebore". Although we are left in doubt whether the Assyrian should be read with a *q* or *k*, the metathesis of the consonants is in accordance with the usual habit of words containing a liquid consonant.

With the identification with *H. niger* L. (or some similar hellebore) we can examine the other synonyms:

"Dog of Gula" (*šamkalab-ā*^{ME-ME}) (or, of Šamas, see *D.* 532, 137) may have been suggested by the curious way in which the many fibres are sent off from the root, and may fancifully, perhaps, have been compared to a dog's legs. The name *melampodion* in Pliny (*NH.* xxv, 21), i.e. "black-foot", may have some bearing on this. *Diosc.* cxlix (cli) says that the *Melampodion* purges, is used for amenorrhœa, toothache, and in ears.

šam^{Aralāš}, from its termination, looks like a Hittite word, as also perhaps does *šampiriduluš* (hardly a Hittite original of *Veratrum*, the other hellebore?).

šam^{RŪ-SIG₅} "plant-which-makes-fair", might perhaps represent the traditional property of the Black Hellebore of curing insanity, dependent of course on the actual meaning of *damiqtu* (*SIG₅*) here.

The confusion between the two kinds of Hellebore, *Helleborus* and *Veratrum*, would appear from the next section hardly to have been as common in Assyria as elsewhere; we find apparently only one instance of the *H. niger* (*šambuḫū*) used actually by name in *MT.* The probable varieties of Hellebore for *šambuḫū* are either *Helleborus orientalis* Lam. (cf. *EB.* xith ed., xiii, 253), as probably the equivalent of *H. niger* in Mesopotamia, occurring in Greece and Asia Minor (*Index Kewensis*, s.v.), or such kinds as, e.g., *H. vesicarius* Auch. in Boiss. (Arab. *ḥarbaq*), from woods-at-Aintab, Mar'ash, Mt. Casius, and Amanus (*FP.*² i, 18), or *H. foetidus* L. (*Index Kewensis*, s.v.), which grows in S. Europe.

G. *šam*^{KUR-KUR}, *atišu*, *Veratrum album* L., white hellebore.

Pl. 25, K. 4398 + 4418, i-ii, 25-31:

25.	<i>šam</i> ^{KUR-KUR}	<i>šamat-i-šu</i>]
	<i>šamša-mi šadī(i)</i>	<i>šamat-i-šu</i>]
	<i>šam uzna</i> ^{II}	<i>šamat-i-šu</i>]
	<i>šam lib-bi</i>	<i>šam šadī</i>
	<i>šamuzun lib-bi</i>	<i>šam šadī</i>
30.	<i>šam</i> ^{PI-PI-NU-NU}	<i>šampi(wa)- . . .</i>
	<i>šam</i> ^{PI-PI-PI-TAK} ¹	<i>šamat-i-šu</i>]

¹ Unless this represents the sound of a sneeze *šampi-pi-pi-šum* (*wa-wa-tu-šum*).

*šam*KUR-KUR is used thus in *MT.* :

Always *simply*¹: *Ext.*: *Eyes* (?), use uncertain, *AM.* 10, 3, 25 : †, *AM.* 13, 3, 7 : †, apply, *AM.* 19, 6, 5, 7, 10 : in a prescription concerning eyes, put on neck on wool, †, *AM.* 14, 3, 10. *Ears*, singing, †, insert on wool, *AM.* 33, 1, 24. *Head*, †, poultice, *AM.* 2, 1, 22. *Stomach*, with cough, †, [bind (?)], *AM.* 27, 2, 8 + 50, 2, 8, *RA.* 1929, 82. *Chest or lungs*, †, poultice, *AM.* 28, 8, 9, *RA.* 1934, 1. *A blow on the mouth*, †, cleanse mouth, *AM.* 78, 1, 12 + 28, 7, 9, *AJSL.* 1930, 4. For *aši* (as appetizer), †, anoint in oil, *AM.* 16, 4, 13 : *AM.* 64, 1, 22 (dup. 16, 4, 13, and 55, 8, 4, *RA.* 1929, 70) ; cf. *KAR.* 203, 64 = *šam aši*, applied boiled : in *Pl.* 29, K. 4566 it is given as a *šam aši*, but no directions have survived.² For "poison" (of muscles), †, poultice, *AM.* 98, 3, 11. For *sihilti*, †, anoint in oil, *KAR.* 56, r. 11. *Hand of Ghost*, †, anoint, *AM.* 94, 2, ii, 13 (use uncertain, †, *AM.* 76, 1, 2 : 97, 6, 5). *Sorcery*, †, anoint, *AM.* 87, 1, r. 6.

Int. : Too much *saliva*, †, in beer drink, *AM.* 31, 4, 12 (cf. Ebeling-Unger, *A.f.K.* i, 23, 3, *šampi* (= *wa*)-*ta-i-ši* : cf. l. 8). *Jaundice*, †, bray, in beer drink, Scheil, *RA.* 1916, 38. *Stomach*, alone in beer drink, and *iarrum* (he will vomit or be purged), *Kü.* ii, i, 48 : †, in beer drink, *AM.* 39, 1, 42 (prob. 36, and 49) : †, in *kurunnu*-beer drink, *AM.* 42, 5, 6. *Difficult labour*, alone in beer drink, *AM.* 67, 1, iv, 21 (dup. *KAR.* 196, r. i, 29). *Strangury*, †, drink, *AM.* 59, 1, 35 (in strong wine) : 60, 1, 7 (in wine or beer) : prob. *AM.* 66, 7, 8 : prob. some form of strangury, †, prob. drink, *AM.* 60, 1, 25. *Hand of Ghost*, †, drink (long diagnosis), *AM.* 76, 1, 8 : †, in *kurunnu*-beer, drink, *ib.* 18, in beer 20 (cf. 27). *Sorcery* (?), †, in beer [drink], *AM.* 87, 5, 15. Uncertain, †, in beer drink, *AM.* 83, 4, 7. *Stomachic*, alone in beer drink (and *iarru*), *Kü.* ii, i, 48.

Suppository: *Hand of Ghost*, †, *AM.* 94, 2, ii, 7. *Stomachic*, †, *AM.* 43, 1, 7.

Fumigate: *Stomachic*, †, *AM.* 57, 3, 9. *Temples*, †, *AM.* 20, 1, 13 ; *head or temples*, †, in cedar-blood, *AM.* 2, 1, 18. "Poison," †, in cedar-blood, *AM.* 91, 1, 13 (dup. 92, 4, r. 1 + 92, 9, 1). *Hand of Ghost*, †, *AM.* 99, 3, 5, 10, r. 3. Uncertain disease, almost certainly fumigate, †, *AM.* 101, 3, 11, 17. In incense, with *burašu* alone, and otherwise, see p. 154.

Quantities: $\frac{1}{2}$ *qa*, *AM.* 86, 3, 3 : $\frac{1}{2}$ shekel, †, in enema, *AM.* 41, 1, iv, 15 : 10 shekels, †, in enema, *KAR.* 157, 20 ; 15 shekels, †, in enema, *Kü.* iii, ii, 22.

My identification with *Hyoscyamus* (*AH.* 103) was wrong, and I amended this, I think correctly (*JRAS.* 1924, 669), to *Hellebore*, definitely. now (from the preceding plant, *šambu'šanu*, Black Hellebore), *Veratrum album* L., the White Hellebore.

A comparison of Ebeling-Unger, *A.f.K.* i, 23, 3 and 8 (a text for saliva) with the similar *AM.* 31, 4, 11, suggests that *šam*KUR-KUR is the equivalent of *šampi* (= *wa*)-*ta-i-ši*, and this restores K. 4398 (p. 151) to *šamat-i-šu*. This word occurs again as *šama-ta-i-si* in *AM.* 90, 1, r. 20 (to be

¹ Except (apparently) *šam*KUR-KUR *zir šam*KUR-KUR, *KAR.* 207, 16. It should be noted that it is always the root which is used in medicine.

² The use of *šam*KUR-KUR as a drug *MAŠ-TAB-BA-RI-RI* (alone) is uncertain (*Pl.* 29, K. 4566, 31, similar to *šam* *riGAM-GAM*, *ib.* 32) : from its association with *aši* in the preceding lines, *MAŠ-TAB-BA* may be similar in meaning.

drunk, †, after a long diagnosis) and *a-ta-i-šu* ($2\frac{1}{2}$ qa) in a Kassite apothecary's list (Clay, *PBS.* ii, 2, No. 107, 34) and in the phrase "one (or two) *kukubu*-vessel(s) of *šam-a-ta-i-šu*" also Kassite (Clay, *BE.* "A", xiv, No. 163, pl. 69, 47). The obvious explanation of *šamatišu* is the "Sneeze-plant" (Nieswurzel), from the cognate Heb. *qīšāh* "sneeze", i.e. Hellebore (*Veratrum album* L.), with its property of causing sneezing, which although admittedly a characteristic of the *Helleborus niger*, is very definite in the case of the White Hellebore (*Veratrum album*) (Stillé and Maisch, *Nat. Dispens.* 1691 : *Diosc.* iv, cxlviii : *EB.* xith ed., xiii, 235, of *helleborein* : J. Humphrey, *Drugs in Commerce*, 64). This is confirmed by the Heb. name for the White kind, *qūndūš ham-ma'tiš* (Löw, *Ar. Pfl.*, 306). By identifying the *šambu'sanu* as the *H. niger*, we can now be definite that the *šamatišu* is the "Sneeze-plant", the *Veratrum*, in spite of the possible confusion (as elsewhere in ancient times) between the two in *MT.* (see below).

The Assyrian prescriptions can be well paralleled in ancient or modern medicine, for the White Hellebore (*Veratrum*) is essentially a cause of sneezing, and is used for eyes, killing the embryo, or causing vomiting, and in pessaries or enemata (*Diosc.* iv, cxlviii : cf. *NH.* xxv, 21 ff.). In *SM.* ii, "White Hellebore" (*hurbakhnā*) is used for eyes (p. 54), head (p. 59), ears (p. 112). Later folklore (*LPG.* 192) speaks of it as having emetic, drastic, diuretic, anthelmintic, sternutatory, and aperitive qualities (the latter doubtless indicated in our *šam aši*, which is confirmed by *BMM.* 128, "a powerful, bitter tonic"). Modern medicine says that in poisonous doses it produces vomiting and vertigo, and is used *ext.* to destroy vermin, for the relief of pruritus vulvæ, itch, and as an errhine for coryza (Stillé and Maisch, *ib.*) and scabies (*FHP.* 632).

Of the other synonyms, the "plant for the ears" (i.e. wisdom) suggests that the confused account of Hellebore given by Pliny, *NH.* xxv, 21 (where it is often impossible to be certain whether he means the White or the Black kind), as a mental stimulant may be comparable to this : "... Numbers of studious men are in the habit of taking it for the purpose of sharpening the intellectual powers." It was, of course, the Black Hellebore which was used to combat mania, but there is nothing certain to be seen in the synonyms for *šambu'sanu* (*H. niger*) in this connection, whereas we certainly have *šam libbi*, "Heart-plant" and *šamuzun libbi*, both synonymous with *šam šadi* ("mountain-plant") in the *šamatišu* (*Veratrum*)-group. Indeed, although the "Heart-plant" here is spelt *šam lib-bi*, it is possible that this is the same as *šamšā*, the "Heart-plant" described in the long incantation in *Kū.* i, iii, 29, which relates how the Heart-plant springs up in Makan (part of Arabia), and the Moon-god . . . , and the Sun-god brought it down from the mountains : its roots fill the earth, its horns pierce the sky, and it seizes on the "heart" of Moon, oxen, sheep, asses, dogs, pigs, men, and women.¹

That both the White and Black Hellebores have long had the

¹ At the same time, although the *H. niger* is said by Pliny (*l.c.*) to kill horses, oxen, and swine, there is no proof that we are dealing with this particular narcotic, any more than another, such as the *Hyoscyamus muticus*, which grows in the north of the Sinaitic Peninsula, with foxglove-like "horns" and purple "bells", and is well known as a plant which intoxicates the senses.

reputation of benefiting patients affected by epilepsy and mania is well known, and the Assyrians accepted this too.

In the *VM.* (*Pl.* 42, K. 274, iii-iv, 13, and an unpublished *K.* text, and *Mat.* 88, 1, 82) the indication occurs :

šamKUR-KUR | ina mu-tal-lik mu-ši

"White Hellebore in connection with the Roamer of the Night." *Mutallik muši* is a bye-name of Nergal (iv, *R.* 24, No. 1, r. 41-3), so that it may be that we are dealing with demoniac possession in some form. Unfortunately, we are not told here whether the *Veratrum* is to be used internally or as a fumigation (see below) : but the following account of *Veratrum*, when used for mania in an old Botany (*Cyclop. of Botany*, 570) is interesting :

"The ancients are high in their encomiums of this plant [*Veratrum*] in cases of mania and epilepsy, and similar observations have been made of veratrum by authors of later times . . . the fullest trial which seems to have been lately made of the efficacy of veratrum is by Greeding, who employed it in a great number of cases (twenty-eight) of a maniacal and melancholic kind ; the majority of these, as might be expected, derived no permanent benefit ; several, however, were relieved, and five completely cured by this medicine. . . . *Veratrum* has likewise been found useful in epilepsy and other convulsive complaints."

We have also, however, to consider the use of šamKUR-KUR as incense or in fumigation. In one long ritual it is added to riqli (*burašu*) in seven censers, but its exact purpose (except that it plays a part in the atonement for the king) is uncertain (*BBR.* No. 26, ii, 17). In another, it is easier to understand (Jensen, *KB.* vi, ii, 42, 5 : Bezold, *ZA.* 1888, 245 : *CT.* iv, 5) : a censer of šamKUR-KUR is to be set on the right of the door for Anu, opposite a second censer of riqkanaktu on the left of the door for Enlil. Here the riqkanaktu (frankincense ?) is intended to give a pleasant smell, while its opposite, šamKUR-KUR (for which no one has ever suggested a pleasant incense) is presumably intended by its smell to drive away a hostile influence (like *Asa fetida*, used in driving away demons, *Sem. Mag.* 149). In a long prescription against various diseases, of which šu-gud ("Hand of a Bull") and šu-nam-ne-šub ("Hand of a tabu") are part, a censer of riqli and šamKUR-KUR is to be presented (*KAR.* 157, 37). The addition of the riqli is very probably to help combustion. It is, however, the Black Hellebore which is given in Pliny (*NH.* xxv, 21, and cf. Theophrastus, *EP.* ix, viii) to fumigate houses¹ ; I have found no example to parallel the use of *Veratrum* thus, and it may be that we have here an instance of confusion between the two Hellebores. We are, therefore, left in doubt about the exact implication of šamKUR-KUR in these fumigations.

¹ Pliny's description of the ceremonies necessary for obtaining the Black Hellebore (and in a less degree the White) are reminiscent of those used by the Assyrians in plucking the Colocynth (see p. 84) : a circle was drawn round the Hellebore with a sword (i.e. iron, to exclude evil influence), and then the person about to cut it turns towards the East and utters a prayer.

IX

COLOURING PLANTS

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- A. 1. *šam*Sapalginu, *šam*kurkanû, *Curcuma longa* L., turmeric.
 2. *šam*Kurkanû ša šadî, *Zingiber officinale* Roscoe, ginger.
 3. *šam*HAR-SAG-ŠAR, *azupirānu*, *Crocus sativus* L., crocus, saffron.
 4. *šam*LID-GAB, *kamantu* or *kaništu*, *Rhus coriaria* L., sumach.

1. (1) *šam*Sapalginu, *šam*kurkanû, turmeric, and (2) *šam*azupiranu, crocus. These two plants (which will both be seen to give a yellow colour) must be distinguished, the one from the other. The vocabularies give long lists of synonyms of (1), but few for (2).

(A) VAT. 9000 gives :

<i>šam</i> sa-ap-la-gi-nu ¹	<i>šam</i> kur-ka-nu-u
<i>šam</i> na-mul iššuri (?)	<i>šam</i> „
<i>šam</i> TA-RI-ZA-AḪ	<i>šam</i> „
[<i>šam</i>]PI-IR-ḪA (?)	<i>šam</i> „
<i>šam</i> LID-GAB	<i>šam</i> kur-ka-nu-u
<i>šam</i> BI(?) . . . MA (?)	<i>šam</i> „
<i>šam</i> si-mat mâtî ²	<i>šam</i> „
<i>šam</i> KA-RÚ-ŠIR-ZUB	<i>šam</i> „
<i>šam</i> kur-ka-nam	<i>šam</i> kur-ka-nu-u
<i>šam</i> PI-RI-MA-AḪ	<i>šam</i> „ ina Kaš-še-e
<i>šam</i> KU-RU-UŠ	<i>šam</i> ina Kaš-še-e
<i>šam</i> e-li-nu	<i>šam</i> ina Qu-te-e
<i>šam</i> kur-ka-nu-u	<i>šam</i> (?) epir a-sur-ri-e ³

(B) Pl. 27, K. 4621 + Pl. 32, K. 10024 + Pl. 34, K. 4565 :

<i>šam</i> sa-ap-al-gi-nu	<i>šam</i> kur-ka-nu-u
<i>šam</i> na-mul iššuri (?)	<i>šam</i> k[ur-ka-nu-u]
<i>šam</i> TA-ḪU(!)-ZA-AḪ	<i>šam</i> ku[r-ka-nu-u]
<i>šam</i> ḪH—TAR—RA	<i>šam</i> kur-[ka-nu-u]
5. NI-DIN-ZUB-BA-ŠAR	<i>šam</i> kur-ka-nu-u
UŠ—E	<i>šam</i> kur-[ka-nu-u]
UŠ-E-Ú-SA	<i>šam</i> kur-[ka-nu-u]
<i>šam</i> GİR—GAB	<i>šam</i> kur-[ka-nu-u]
<i>šam</i> LID-GAB	<i>šam</i> kur-[ka-nu-u]
10. <i>šam</i> KA-BAD	<i>šam</i> kur-[ka-nu-u]
<i>šam</i> [K]AK (?)	<i>šam</i> kur-[ka-nu-u]
<i>šam</i> MAN (?)—LÚ (?)	<i>šam</i> kur-[ka-nu-u]
<i>šam</i> en-ti si-mat mâtî	<i>šam</i> kur-[ka-nu-u]
<i>šam</i> ellat si-mat [mât]i (?)	<i>šam</i> kur-[ka-nu-u]
15. <i>šam</i> LID-GAB . . .	<i>šam</i> [kur-ka-nu-u]
<i>šam</i> KA-RÚ-Z[UB(?)]	[<i>šam</i>]kur-ka-nu-u

¹ Gadd, CT. xli, 45, 14, gives this form.

² The character D. No. 103, 5.

³ Cf. VM.: Pl. 42, K. 274, 22 : also an unpublished duplicate : Mat. 88, ii, 6 :
 (šam)(⁴⁵)kur-ka-nu-u (v. nam) | ina epir a-su-ur-ri

	PIŠ-ZUB-BA-[ŠAR] ¹	[šam]kur-ka-nu-u]
	šam U ² -KA-N[Á (?)]	[šam]kur-ka-nu-u]
	šam KUR-GI-RÍN-N[Á]	[šam]kur-ka-nu-u]
20.	šam GÍR—[GAB (?)]	.....
	šam kur-ka-nam ša šadī[(i)]	.....
	šam KUR-GI-RÍN-[NA]	šam PI-[RI-ZA-AH]
	UŠ-E-EL-ŠAR	i-šid [šam]kur-ka-ni-i]
	šam PI-RI-ZA-[AH]	šam kur-k[a-nu-u ina Kaš-še-e]
25.	šam PI-IR-[HA]	šam
	[šam]KU-RU-UŠ]	šam ,, [ina Kaš-še-e]
	[šame-li-nu]	šam ,, [ina Qu-te-e] ³

108860 (CT. xxxvii, 29, 12 ff.) has only the left column :

- (12) šam sa-al-ba-gi-nu. (13) šam na-mul iššuri (?). (14) šam TA-RI-ZA-AH.
 (15) šam na-mul ha-am. (16) [šam]PI-RI-ZA-AH. (17) [šam]PI-IR-ĤA.
 (18) [šam]KUR-GI-RÍN-NA. (19) šam UD(?)—AŠ-NI(?). (20) [šam]e-li-n[u].

Cf. Mat. 86, xii-x, 7 :

KUR-GI-RIN-NA-ŠAR | kur-ka-nu-u | UD (!)-RI-ZA-A[Ĥ].

So much for šam kurkanû.

On the other hand there are few occurrences in the vocabularies of šamazupirānu (CT. xi, 45, i-iv, 2) :

A-ZU-UK-NA | šam ĤAR-SAG-ŠAR | šam[ĤAR]-SAG ,, (= [ni]-si-gu-u) | [a-zu-pi-ra-n]u ⁴

In the Agade period we find KUR-GI-RIN ŪR (i.e. the root, for the garden of the High Priest, followed by two entries for ŪR alone with amounts) (Thureau-Dangin, ITT. 1282), and in Kassite times šam kur(!)-ka-nam prescribed for some stomachic trouble (Waschow, MAOG. x, 1, 35, 35). šam ĤAR-ŠAG-GÁ (saffron) is found on a text of the epoch of Ūr (Scheil, RA. 1921, 58).

Now the respective uses of the two plants (1) and (3) in MT. are as follow :

1. šam Kurkanû :

(1) *Simply*: ext.: Eyes, †, bind on, AM. 12, 6, 5 (šam KIR-GI-RÍN-NA). Muscles, hands and feet, †, (prob. ext.), AM. 98, 3, 16 (šam kur-k[a-na-a]). For insects, alone, bray, anoint in oil, KAR. 203, iv, 16 (šam KUR-GI-RÍN-NA).

Int.: Strangury, †, drink, AM. 59, 1, 36 (šam KUR-GI-RÍN-NA), jaundice, alone, drink in beer, Kū. iii, iii, 10.

Fumigate: Ears, †, AM. 35, 1, 3. Nose, †, AM. 64, 1, 21. Head, †, AM. 2, 1, 18. Mouth and nose, †, KAR. 202, 37. Hand of Ghost, †, AM. 80,

¹ On the analogy of l. 5 (K. 8249).

² Is this KUR, not U ? [U is correct.]

³ Pl. 40, 82-5-22, 576, has the left column extant, with . . . šam occasionally on the right (ll. 2-8) : (1) šam KUR-KA-NA. (2) šam KUR-GI-RÍN-NA. (3) šam PI-RI-ZA-AH. (4) šam PI-IR-ĤA. (5) šam KU-RU-UŠ. (6) šame-li-nu. (7) šam kur-ka-nam ša šadī-ma. (8) šam KUR-GI-RÍN-NA. (9) UŠ-E-EL-ŠAR.

⁴ Or [a-zu-pi-r]um (Deimel 401, 112 incorrectly [a-zu-pi-ra-ni-tu₂] which is not saffron at all (p. 64)). Cf. CT. xix, 50, 5. [ĤAR]-SAG-ŠAR = a-zu-pi-r[a-nu], probably, from the spacing.

6, 5 (+ 99, 3), *dup.* 98, 1, 4. *Poison* (with sulphur, bitumen, and KA-AB-BA), *AM.* 91, 1, r. 2 (*dup.* 92, 4, r. 2).

Quantities: $\frac{1}{2}$ shekel, *AM.* 50, 3, r. 4: 3 carats, *AM.* 10, 2, 4 (obviously *kur* must be read here, but I have not re-examined the text). 2 shekels in an apothecary's list, *ADD.* 1074, 8.

(2) *Root*: For *parkadi* (some *ext.* disease) alone, bray, wrap in [hair (?)] (v. goat's hair), put on neck (an unpublished text from Nineveh), 13: *KAR.* 203, i, 36.

The species *šam*KUR-GI-RÍN-NA (*kurkanam*) *ša šadî* ("of the mountains"): occurs in *MT.* (as well as in the vocabularies): *Stomachic*, bind on (Aš-su), †, *KAR.* 186, 17. For TU (?) (*stomachic*), bray, [drink] alone in *kurunnu*-beer, *KAR.* 200, 5. *Fumigate*, †, *AM.* 101, 3, 17.

3. *šam*azupîru, *šam*azupîrânu, is used in *MT.* thus:

(a) "yellow *šam*azupîru": *Strangury*, drink alone in *kurunnu*-beer (*KAR.* 203, i, 26): for sickness of . . -*bati*, anoint in oil, *ib.* 47.

(β) *šam*Azupîrânu (or *šam*HAR-ŠAG(-ŠAR)).

(1) *Simply: ext.: Childbirth*, alone in oil and beer put into [uterus (?)], *KAR.* 195, 16. *Hand of Ghost*, †, anoint, *AM.* 95, 2, ii, 9: 100-2, 8 (probably anoint): *KAR.* 184, 20. *Ghost*, †, anoint, *AM.* 33, 3, 7, *dup.* 96, 4, 10. *Poultice*, †, *šam*HAR-ŠAG (glossed *šam*HAR-HAR), *AM.* 70, 7, 5 (*cf.* *KAR.* 191, i, 16 ff.).

Int.: Woman's disease (menstruation), drink with *Cannabis*-seed and *Ammi* brayed in beer, *KAR.* 194, iv, 1. Drink and anoint (uncertain disease), †, *AM.* 88, 2, r. 8.

Enema (presumably), †, *AM.* 94, 2, 10, ii, 4 (*cf.* 56, 1, r. 8, and †, *KAR.* 157, 3).

Fumigate: Ghost, †, *AM.* 78, 10, 2, *dup.* 99, 3, 14 (*cf.* r. 4): "While yet green," †, anoint, *AM.* 88, 2, 7.

Quantity: 10 shekels, *AM.* 57, 3, r. 7 (*cf.* 42, 2, 7).

(2) *Seed: (šam)azukîrâni*, *stomachic* (?), alone, use uncertain, *Kü.* ii, ii, 9. *Temples*, shave head, poultice, †, *CT.* xxiii, 39, 2.

(3) *Root*: "1 šû of root of *šam*HAR-ŠAG-ŠAR," †, *stomachic*, *AM.* 41, 1, 27.

Curiously the form *šam*azukîranu occurs more than once, *AM.* 33, 3, 7, where the duplicate 96, 4, 10, spells it correctly: *Kü.* ii, ii, 9 and *KAR.* 195, 16 have *šam*azukîrâni.

The more modern uses of turmeric and saffron are as follows:

(1) *Turmeric*, the drug from the root of *Curcuma longa* L.: "at one time much employed in medicine, chiefly for obstructions of the bowels and liver" (*VK.* 519), as in one prescription in *MT.* In India it is used *ext.* for pains and bruises, and eyes in conjunctivitis, and *int.* for jaundice, while its fumes cause copious mucous discharge, and are used in hysteric fits (*IMP.* ii, 1251). *Int.* it is used in India for liver, for jaundice, and for urinary disease (*BMM.* 521). With us its chief use is for dyeing. It is not included in *FP.*² but it is to be found in the bazaars in Mesopotamia, having come from India.

(2) *Saffron*, the dried stigmas and tops of the styles of *Crocus sativus* L., used to-day for giving a colour (*P.* 457). The root was prescribed as diuretic by Diosc. (i, 25), who also recommends saffron for eyes and ears. It was at one time used as an antispasmodic and emmenagogue

(Post, *DB.* iv, 352). In India it is used in fevers, melancholia and enlargement of the liver; it has stimulant and stomachic properties (*IMP.* 1274): it is used in pessaries in the uterus, and as emmenagogue, carminative, and against asthma, and *ext.* as a paste it is useful for relieving bruises, and it is an excellent palliative for hæmorrhoids (*BMM.* 530). *IB.* 1110 gives *za'frân* as an *ext.* remedy for the liver, and the leaf for wounds: a woman who had miscarried was successful in child-birth after drinking it. In early times the chief seat of the saffron crocus was Corycus (mod. Korghoz) in Cilicia (*EB.* xith ed., s.v. "Saffron"). I saw *Crocus speciosus* Bieb. near Mosul (kindly identified for me by Dr. A. B. Rendle, F.R.S.). Rauwolf (*I.* 75) says that at Aleppo sesame, coriander, and wild garden saffron were used on bread.

We can now discuss the two plants. First, an important passage, *Pl.* 48, Rm. 328, r. 2-4, gives four substances for "staining the hands" (... *šam* ID^{pi} šī + DUP^{pi}), a very usual custom in the East. The Assyrians appear not to have had henna; I have been unable to identify anything like it in the texts. Certain it is that, if they had had it, it would have been included among these four yellow stains, which consist of [*šam*NU-L]UḪ-ḪA (*Asa foetida*), *šamkurkanû*, *šamḥaldappānu* (mustard), and *šamazupirānu*. Of these we have now only to distinguish the exact meanings of *šamkurkanû* and *šamazupirānu*, and the now well-known similarity of the two words (respectively) to the Heb. *karkôm* and the Arab. *za'frân* is so obvious that it is only a question which is which. Both appear to be used in the Near East for external purposes not obviously of real medical use; in Basrah I was told that the use of staining the hands with *Curcuma* was that it was "good for the body"; and on the other hand the Arabs of the Pirate Coast (on the Persian Gulf) in certain cases of sickness rub the body with ghee mixed with saffron powder (Whitlock, *Trans. Bombay Geogr. Soc.* i, 38).

In *MT.* the use of these two drugs is not obviously comparable to that of modern prescriptions, except in so far that *šamazupirānu*, on the one hand, coincides possibly with the use of saffron as an emmenagogue (the Assyrian is not certain), while *šamkurkanû*, on the other, tallies with *Curcuma* in its more frequent use in fumigations. But in other respects the evidence for *šamkurkanû* as "turmeric", and *šamazupirānu* as "saffron" is surer. One definite piece of evidence is the derivation of *šamazupirānu* from *šupru*, "claw," as the Assyrians, at all events, accepted: in a charm against an enemy, *KAR.* 178, v, 49, it is written that on the 18th of Siwan one must eat hellebore, mustard, and *šu-pur a-zu-pi-ru* in a lump of salt without a meal. Here is obviously the "clove of saffron", in which it is not too fanciful to see the Assyrian word for the essential part of the saffron-crocus from which saffron is obtained, *i.e.* the stigmas of the flower, actually thus described in *IMP.* 1274: "style thread-like, branching into 3 style-arms, *i.e.* stigmas exserted, orange-red, sub-clavate." The same philology is apparent in the pun in *Maqlû.* v, 31: *kima šam*ḪAR-ŠAG-ŠAR *lišappirušī kišpuša*, "like saffron may her sorcery scratch her".

This derivation from *šapûru* is in definite contrast to that of those words given as synonymous with *šamkurkanû* "turmeric", *i.e.* *šam*UŠ-E, *šam*UŠ-E-Ū-SA, and *šam*UŠ-E-EL-ŠAR, where there would appear to be an

obvious association intended between *uš* "phallus", and the curious phallus-like roots of the *Curcuma*. The root of *kurkanû*, *karâku*, is the same as the Syr. *k'rak*, *invohrit* (with all the meanings suggestive of "roundness" connected therewith, e.g. *PRSM.* 1926, 70, *takarrak*, of winding a strip of linen round the finger). *Kurkanû* evidently refers philologically to the cylindrical roots of the *Curcuma*.

Lastly we may cite the use of the root of *šamkurkanû* (although it has to be explained that the root of *šamazupirânu* is also found mentioned): *ivR.* 26, 7, 43, *išid* (úr) *kurkanê usuh-ma* "pull up the root of the *kurkanû*", just as úr is used on p. 158 in much earlier times.

Philologically there is some little difficulty in finding definite cognates for the two, for the Heb. *karkôm* and the Arab. *kurkum* may mean both "turmeric" and "saffron" (*FJ.* ii, 7). Indeed, the Skr. for *Crocus sativus* is *kumakuma* (*BMM.* 530), or *kunkuma* (*IMP.* 1273). On the other hand, I definitely heard *kurkum* for turmeric in the Ashar bazaar (near Basra); Forskål gives the equivalence as *Curcuma rotunda* (*FÆ.* cii), and the Syr. 'eqqârâ dh' *khurk'mâ* (translated *Curcuma longa*) is certainly suggestive in its use of the word 'eqqârâ, "root."

The evidence for *šamkurkanû* as "turmeric" and *šamazupirânu* as "saffron" may, therefore, I think be regarded as certain.

From *šamazupirânu* we can work backwards to *šamazupiru*. *šamAzupirânu* is evidently the actual "saffron" (to go further, we can quote *azupirânitu*, the saffron-coloured rust in corn, p. 64): *šamazupiru*, evidently the base of these, originally meant the actual plant: in *MB.* 32 it occurs as *a-zu-pi-ri šAR* in the same group as *asmidu šAR*, *kusibirri šAR* (coriander), and *ezengiri šAR* (rocket), and we have also seen the *šupru* of it quoted (p. 160); on the other hand there is *šama-zu-pi-rum arqu* "yellow *azupiru*", quoted on *Pl.* 27, K. 4430, i, 4, dup. *Pl.* 35, 27: cf. also *KAR.* 203, i, 26, dup. *Pl.* 27, K. 4430, 5, and (?), *Pl.* 35, K. 4180, A, 27. *šama-zu* (v. *su*)-*pi-ru(m) arqu* | *šamditto* (= *hi-niq* ELAMKUŠ) (v. written out) | bray, drink in *kurunnu*-beer. Also cf. *ib.* l. 47, *šama-su[sic]-pi-ru arqu* |. (Deimel gives a form *šamHAR-šAG arqu* (No. 401, 114) from *KAR.* 184, 20, but it is obviously *šamHAR-šAG-šAR*).

The form *azupiranu* is as near the Arab. *za'frân*, as *arzallu* is to *za'rur*.

We can now continue with the synonyms for *šamkurkanû*:

(1) *šamSapalginu*, *šamsaplaginu*, and *šamsalbaginu*, compared by Meissner (*MVAG.* 1904, 3, 29) with the Syr. *s'phalgînâ* given now as corrupt in *FJ.* iii, 339. *BMM.* 521 gives a curious form of an Arabic word used in India for *Curcuma longa*, *urukusasabâghina* (the *uruku* being probably the Arab. word for "root") which certainly suggests our word.

(2) *šamNamul iššuri* (?). *šamNamullu* is a wooden object, but *šamnamul iššuri* (?) is obscure: *šamnamul ha-am* is another form, and it would seem not improbable, from this second form, that the correct word is *šamnamulhu*. On account of the form *šamnamul ha-am* we cannot refer it to the Celandine, *Chelidonium*, "herbe aux hirondelles," Swallowwort, called, according to *IB.* 1525, crocus and curcuma, with a yellow root used for dyeing (Arab. *halāfiyah*).

(3) *šamTA-RI-ZA-AH*, *šamTA-ĤU(!)-ZA-AH*, *šamPI-RI-MA-AH*, *šamPI-RI-ZA-AH*, *šamPI-IR-ĤA*. The equivalence . . . *ZA(?)AH*: *šamkur-ka-nu-û ša ma-a-tû šamsa-pal-gi-na* occurs *BRP.* iv, 37, 16 (*JRAS*), 1924, 456).

(4) *šam*LID-GAB is a synonym for *kamantu* (*kaništu*).

(5) *šam**simat māti* (character *D.* 103, 5) varies with *simat māti* (character *D.* 366, 14) in *šamenti simat māti* and *šamellat simat [māt]i*: ZUB has also the value of *sikru*. *Enti* (i.e. *imtu*, saliva) and *ellat* (*illatu*, saliva) suggest comparison with *šam*UH-TAR-RA (or -*si*, i.e. *parasi*) "drug for stopping saliva".

(1) (b) *šam**Kurkanû ša šadî* must have some special significance, and can hardly mean merely "turmeric of the mountains". This is stressed in *BRP.* iv, 37, 16 (*JRAS.* 1924, 455) where the two kinds *šam**k. ša šadî* and *šam**k. ša mātu* are spelt out distinctly:

*šam**kur-ka-nu-û ki-ma su-ḥa-tum gul-lu-ub šam**kur-ka-nu-û šá šá-di-i* (17) [*šam*PI(?)-RI(?)-Z]A(?)-AH: *šam**kur-ka-nu-û šá ma-a-tú šam**sa-pal-gi-na*: "turmeric shaved (scraped) like *suḥatum*¹ (is) *kurkanû ša šadî* (turmeric of the mountains) (17) [*šam*PI(?)-RI(?)-Z]A(?)-AH: *k.* of the country (land) (is) *sapalgina*."

None of the other tumerics besides *C. longa* (i.e. *C. Zedoaria* Roscoe, *C. aromatica* Salisb., *C. leucorrhiza* Roxb., *C. angustifolia* Roxb., which appear to make the list complete, can be held likely to fill the place of "k. of the mountains", inasmuch as they are natives of E. India or other far distant lands. If, therefore, we note the *BRP.* commentary here quoted, and compare the process employed of "shaving" or "scraping", we can go a little further afield from turmeric to a substance closely allied to it, ginger. The roots of the white ginger of commerce are peeled and dried in the sun (*PC.* 1843, xxvii, 784): "they are scraped clean and dried carefully" (*VK.* 490). "The fresh rhizome is scraped, washed, and then dried in the sun" (*FHP.* 1st ed., 1874, 576).

I obtained ginger in the Mosul bazaar and was told that its name was 'orq harr ("hot root") or *zingifil*, and that it grew "in the hills".

Skeat (*Etym. Dict.*, s.v. "ginger") refers the word zingiber to the Skr. *griṅga* "a horn"; "the resemblance to a deer's antler is striking." No word similar to zingiber appears in the Assyrian synonyms. It is interesting to see that the Assyrians recognized that the *Curcuma* and the *Zingiber* belonged to the same family (Zingiberaceæ).

We can go on to *šam*LID-GAB:

3. *šam*LID-GAB, *kamantu* or *kaništu*, *šapru*, *šapratu*, *Rhus coriaria* L., sumach.

VAT. 9000 gives:

<i>šam</i> <i>šap-ra-tú</i>	<i>šam</i> <i>ka-man</i> (or <i>niš</i>)- <i>tú</i>
<i>šam</i> LID-GAB	<i>šam</i> "
<i>šam</i> <i>ki-ur</i> (!)- <i>ni</i>	<i>šam</i> "
<i>šam</i> <i>bar-te</i>	<i>šam</i> <i>šá-mu a-še-e</i>
<i>šam</i> <i>šá-mu a-še-e</i>	<i>šam</i> <i>zir ka-man-tú</i>

Pl. 28, K. 4345, r. vi-v, 6 ff.:

¹ "The upper lip." In the period of the First Dynasty of Babylon the upper lip was shaved (cf. the pictures of *Ḫammurabi*).

šam ^{LID} —GAB	šam[ka-man (or niš)-tu]
šamša-ap-ru	šamk[a-man-tu]
šamša-ap-ra-tú	šamk[a-man-tu]
šamša-la it-tú	šamk[a-man-tu]
šam ki-ip-ni	šamka-[man-tu]
šamzir ^{LID} —GAB	zir šam[ka-man-tu]
šam bar-tú	zir šá-mi [a-ši-i]
šamzir šá-mi a-ši-i	zir šam[ka-man-tu]

šam^{LID}—GAB occurs thus in *MT.* :

(1) *Simply: ext.: Head* (itch) with alum and *Nigella*, bind on with honey, *KAR.* 202, ii, 6 : *guraštu* (itch) with *Ricinus* [anoint in . . .], *AM.* 17, i, ii, 2. For *šibit šári* alone, bray, anoint in oil, *KAR.* 203, iv, 9. *Flies*, bray alone, anoint in oil, *ib.* 18. *Aši*, bray alone, anoint in oil, *ib.* i, 62 : †, anoint in oil, *AM.* 55, 8, 5 (or seed). *Ghostly pain*, †, anoint, *KAR.* 182, r. 32. *Bruise* (*mišitti*), †, *AM.* 79, i, 22. *Swelling*, †, poultice, *AM.* 100, 3, 13. Uncertain *flesh trouble*, †, poultice in *kurunnu*-beer, *AM.* 15, 3, 16 : *sickness on body*, †, poultice, *AM.* 52, 3, 6. Uncertain, †, poultice, *AM.* 70, 7, 4. †, [anoint] in oil, *AM.* 37, 3, 4 (or seed) : 96, 4, 5. For *maš-tab-ba* alone [in oil ?] anoint, *AM.* 64, 1, 32. Uncertain use, cough, †, *AM.* 80, 1, 20. A form *ka-man-du* occurs, for swellings, †, bind on, *KAR.* 192, i, 19.

(2) *Seed: ext.: HAR^{pl}* (lungs), bray alone, anoint in oil, *KAR.* 203, iv, 21. *Temples*, †, in beer bind on, *CT.* xxiii, 40, 19, *dup.* *AM.* 20, i, 14. *Feet*, with *pirhi šar* in rose-water, bind on, *AM.* 74, i, iii, 10. *Ašú* (pain),¹ †, anoint in oil, *AM.* 55, 8, 5, *dup.* 64, i, 22 (and 16, 4, 13) : alone, directions lost, prob. *ext.*, *KAR.* 203, iv, 5 : *cf. Pl.* 29, K. 4566, 27.

Int.: For having seed, bray, drink alone in *kurunnu*-beer, *KAR.* 203, i, 18.

Suppository (simply, or seed ?), †, put to anus, *AM.* 101, 3, 5.

That šam^{LID}kamantu (*kaništu*) is the proper restoration above is clear from the duplicates *AM.* 4, 6, 8–12, and 96, 4, 1–6, where it varies with šam^{LID}—GAB.

That šam^{LID}kamantu is the more probable reading than šam^{LID}kaništu is suggested by the form *ka-man-du*, given above : and this would suggest a root *kamāmu* (the final *m* becoming *n*, and the feminine *t* becoming *d*).

Now the derivation of the word *šapru*, *šapratu* (seeing that šam^{LID}—GAB is also a synonym for “turmeric”) can only be from the same root as the Arab. *šafara*, “be yellow.” Secondly, the description of this drug, šam šala ittu (like šam^{LID} ID^{pl} šī + DUF^{pl} “drug for staining the hands”, p. 160²) must mean “a drug for marking (staining) *šala*”, i.e. the Syr. šālā “a hide”. Here then, we have a yellow drug like turmeric, used for staining hides, and this must obviously be the sumach, one of the best-known products of N. Mesopotamia, where the dyeing and

¹ Or should this be appetite ? It is, however, unlikely that this would be used externally (*Curcuma* is a cordial and stomachic, *BMM.* 521).

² Are we to include here the *subur* of Bertram Thomas's *Arabia Felix*, 74 ; “An old Mahra lady, unveiled like all her kin, her face smeared indiscriminately with the greenish yellow *subur* dye (of a local tree). . . . The same pigment coated her arms from the elbows downwards, the legs from the knees downwards, and the upper part of the breasts to the neck.”

tanning of leather is a staple trade. *Rhus Cotinus* L., for instance, "is made use of, like many other of the species, for tanning, in Italy. . . . The wood is used by the modern Greeks for dyeing wool, which is said to be of a beautiful rich yellow." *Rhus coriaria* L. "is extensively used for the purpose of tanning, and it is said that all the leather made in Turkey is tanned with the bark of this species of *Rhus*" (*PC.* xix, 1841, 484, 485). The former, according to Booth's *EC.* 658, "contains, besides an astringent [constituent] . . . the colouring matters, yellow, red, and brown." In making chrome Box and Willow Calf "for all pale shades sumach is exclusively used," *EB.* xith ed. s.v. "Leather". *FJ.* i, 200 says: "Die jungen Blätter auch Frucht und Rinde . . . wurden schon im Altertum zum Färben und Gerben . . . verwendet . . . die Wurzel die übrigens auch gelb färbt," and *FP.*² i, 285, speaks of the *Rhus Coriaria* L. (fruit, bark, and young leaves used in tanning and dyeing) at Mar'ash and Aintab, etc., and the *R. Cotinus* L. near Alexandretta, Mar'ash, etc.

An amusing confirmation of this is to be found in the synonym "a drug for *kipnu*", i.e. the Syr. *kephnâ* "hunger", paralleled by *šam bartu*, the latter word meaning, I suggest, "hunger" from *barû* "be hungry." (like *bantu* from *banû*, *pirtu*, from *parû* (?), *sihtu* from *sihû*). *PC.* (l.c.) says of this that "the fruit [of sumach] is acid and astringent, and the seeds are often used as tonics for exciting the appetite". *VK.* 520 says that "the seeds [of sumach] are used in Aleppo to provoke an appetite before meals. Both leaves and seeds are astringent and tonic". This is apparent in *šamšamu ašê* "a drug for appetite" (*p.* 162). "Its medicinal qualities are wholly to be ascribed to its stypticity or astringence" (*Cycl. of Botany* 1, 115. Rauwolff (i, 56), speaking of Tripoli in Syria, says: "then I found also in their Shops abundance of the Seeds of *Sumach*, whereof they make a red powder, to excite the Appetites of the Stomach." Pliny (*NH.* xxiv, 54) prescribes Sumach for bruises, and ulcers of the rectum, and also internally. This compares well with *MT.*

Gottheil's "Fragments of a Short Medical Vocabulary from the Cairo Genizah", *Jewish Quarterly Rev.* 1935, No 1, 22, also shows its *ext.* use:

"Sumach. Its natural property is cold and dry to the second degree; astringent, it strengthens the intestines, allays thirst and pain coming from spleen. It is useful in case of dysentery and an abrading disease in the belly, taking a clyster with it boiled. It is [also] useful in the case of ulcers that persist a long time, and its gum is good against the corroding of the teeth; but it is inclined to produce melancholy."

B. 1. *šamKamkadu*, *Colchicum autumnale* L., Meadow Saffron.

2. <i>šamE-nirhi</i>	"	"	"	"
3. <i>šamŠurnû</i>	"	"	"	"
4. <i>Habašillatu</i>	"	"	"	"

1.-3. *VAT.* 9000:

<i>šam</i> ar-ti-zu- <i>hi</i>	<i>šame-nir-hi</i>
<i>šame-nir-hi</i>	<i>šamtu-ba-qu</i>
<i>šamtu-ba-qu</i>	<i>šamkam-ka-du</i>
<i>šamša-ap-ru</i>	<i>šam</i> ,,

Pl. 41, K. 4564 + 8771, r. 1-6 + Pl. 37, K. 9948 :

<i>šam</i> šar-ti su- <i>hi</i>	<i>šam</i> šur-nu-u
[<i>šam</i>]šar-ga-da-ra-nu	<i>šam</i> šur-nu-u
[<i>šam</i>]šar-na-ga (?)	<i>šam</i> šur-nu-u
[<i>šam</i>] . . -ga-da-ra-nu	<i>šam</i> šur-nu-u
5. [<i>šam</i> šar]-zu- <i>hu</i>	<i>šam</i> šur-nu-u
[<i>šam</i> šur-nu-u]	<i>šamb</i> (p)ap-pi-ri (!)- ^a Adadi
.....	<i>šame</i> -nir-[<i>hi</i>]
.....	<i>šamtu</i> -ba-qu
[<i>šam</i> šEŠ]HU (MUŠEN)	<i>šami</i> š-šur-ri <i>šamtu</i> -ba-qu
..... -HU (MUŠEN)	<i>šami</i> š-šur-ri <i>šamtu</i> -ba-tu
5. [<i>šamtu</i> -ba]-tu	<i>šami</i> š-šur-ri
.....	<i>šamtu</i> -ba-qu
.....	<i>šamkam</i> -ka-du
.....	<i>šamkam</i> -ka-du
.....	<i>šamkam</i> -ka-du
10.	<i>šamkam</i> -k[a-du]
.....

Mat. 88, 5, 14-27 :

<i>šam</i> MAŠ—KI—GÚ (?)	<i>šamkam</i> -ka-du
15. <i>šam</i> kim-ši GÚ (?)	<i>šam</i> „
<i>šam</i> mur-ši	<i>šam</i> „
<i>šamkam</i> -ka-du	<i>šami</i> š-qi-[p]u

This is followed by Pl. 28, K. 4345, vi-v, 1-5 (not a “join”, but obviously part of K. 9948 above, the length of the gap being uncertain) :

.....
<i>šamta</i> (?).....	[<i>šamkam</i> -ka-du]
<i>šam</i> KA-KA-KA	<i>šam</i> [<i>kam</i> -ka-du]
<i>šam</i> KA-KI-DAR	<i>šam</i> [<i>kam</i> -ka-du]
<i>šam</i> ID-KA-KI-DAR	<i>šam</i> k[am-ka-du]
<i>šam</i> BAR-ŠAK-KI-IN-DAR-RA	<i>šam</i> k[am-ka-du] ¹
.....
.....

¹ ¹²SA-GIŠ-ŠAR, ¹²SA-KI-IN(?) -DAR (?) = *šalamtum*, ¹²SA-KI-IN-DAR (?), ¹²SA-KI-IN-DAR . . . ,
¹²*kam*-ka-du = *kam* (?) -ka-du (Meissner, *MVAG*. 1916, 2, 27, 19).

Pl. 24, K. 4438, B, 1-11 :

.....	šam	.....
.....	šamb(p)ap-[pi-ru- ^d Adadi]	1
.....	šame-[nir- ^{hi}]	
.....	šamtu-b[^a -gu]	
5.	šamtu-b[^a -tu (?)]	
.....	šamkam-ka-[^{du}]	
.....	šamkam-ka-[^{du}]	
.....	šamkam-ka-[^{du}]	
..... -su (?)	šamkam-ka-d[^u]	
10. -KAM	šamkam-ka-d[^u]	
[šamKA-KA]-KA(?)		

VAT. 9000 :

šamšar-na-gu	šamšur-nu-u
šamšar-zu- ^{hu}	šam ,,
šamšAR-GA-DA	šam ,,
šamšur-nu-u	šamb(p)ap-pi-ru- ^d Adadi

Of this large collection of synonyms and part synonyms we shall do best to take the šamkamkadu group first.

The obvious evidence for its meaning is in the synonym šamš(s)arnagu, so similar to the Syr. *sūringān*, Pers. *sūrnažān*, *Colchicum*, that we can have little doubt that this is the line to follow. This is confirmed by the addition of šamšapru (through its connection with sumach, the yellow dye, and turmeric or crocus, and the Arabic *šafara* "be yellow", p. 163) as a synonym; *Colchicum autumnale* L., the meadow-saffron, has a great similarity to the saffron, "a perennial succulent bulb, from which rises a long tube containing the flower" (VK. 546), "so very like an autumn crocus that an inexperienced observer might readily mistake the one for the other" (PC. vii, 338).

Next, take the synonym šame-nir^{hi} which must have the meaning "come—let—us—copulate". A glance at the picture of the *Colchicum* with its long tubular sheath and bulb at the end will show why this name was given it. The corm attains its full size in June or early July, and a smaller corm is then formed from the old one close to its root (EB. 11th ed., xi, 661).

The curious synonyms containing the words šamtubaqu and šamtuba^{tu}, connected obviously in the mind of the Assyrian botanist with the bird iššur tuba^{qi} (an examination of the lists on pp. 165, 166 hardly warrants a more definite statement), are difficult. If we accept šamiššur tuba^{qi} as a true equivalent, then, in reference to the original Sumerian values of the latter (see p. 165) "bitter bird" would appear to be the easiest base from which to start, since the *Colchicum* is notoriously bitter

¹ Sic, [division-line] re-examined.

(cf. *FH.* 2nd ed., 701). But such an elaborate synonym to produce the comparison "bitter" seems unlikely, and the real value may lie in the simple *tubaqu* and *tubaṭu* without more than a fleeting connection in the Assyrian mind between these rare words (of which the meaning is unknown) and the bird connected therewith. At the same time, in consideration of the great accuracy of Assyrian method, this is not a satisfactory way of "shelving" the problem.

^{šam}*Arti-zuḥi* is obviously the same as ^{šam}*šarti-suḥi*, and it is therefore difficult to offer a meaning. In the latter *šarti* may be "hair" with the suggestion that the *Colchicum* with its irritant properties, was a hair stimulant, paralleled, perhaps, by the use of ^{šam}*kamkadu* on the cheek or beard (below). ^{šam}*Šarzuḥu* and some of the other words appear to be equally corrupt forms of the same word. ^{šam}*Bappiri-^aAdad*, as at present understood, would mean something like "malt of Adad (the rain- or wind-god)". The Arabic names of the *Colchicum mbaššeret eš-šita* "harbinger of winter" and *bešeret el-maṭar* "harbinger of rain" (according to *FJ.*² ii, 157) might be applicable since (as *IB.* 1249 says) once the earth has received the spring rain the *suringān* flower appears (not more than a week later).

The other Arabic name *sirāj al-ghūlah* "lamp of the ghoul" is still more remote, but contains a possible remote connection with some of the Assyrian forms *šarnagu*, *šarzuḥu*, etc.

^{šam}*Išqipu* "worm-plant" (= *išqippu*, *quḡani qaqqari*, *Fauna* 129), i.e. the earthworm, doubtless in comparison with its tubular sheath coming from the ground. *VM.* (*Pl.* 27, K. 4431, 8: *Pl.* 42, K. 8807, 7: K. 4163, 8: *Mat.* 88, 1, 5) has its peculiar way of stating this relationship:

^{šam}*kamkadu* | [*ina i*šqippu

^{šam}*teliltu kal-li(?)* . . . "plant of the cleansing of . . .", uncertain reference. For the two main words ^{šam}*kamkadu* and ^{šam}*šurnū* I can suggest nothing.

^{šam}*Kamkadu* is written both ^{šam}*kām-ka-du* and ^{šam}*kam-ka-du*, and it occurs thus in *MT.*:—

(1) *Simply*: *Ext.*: *Cheek*, or *Beard*, †, *AM.* 26, 8, 13. Against the disease *ḪI-DAR ḪU* (*ḫi-dar iššuri(?)*), doubtless cutaneous, alone, apply to the sick place, *KAR.* 203, iv-vi, 56 (dup. *Pl.* 37, Rm. 357, 7) (note the form ^{šam}*ša-mi GIG* (*murūš*) *ḪI-DAR ḪU*, *Pl.* 36, Rm. ii, 412, 6). *Swelling*, †, "in beer in a small copper pan steep in milk," bind on on a cloth [*AM.* 73, 1, 13], dup. *KAR.* 192, 5: †, dry, bray, bind on as a *rabiki*, *AM.* 73, 1, 29, dup. *KAR.* 192, ii, 16: with sumach and others, dry, pound, mix with ground flour, steep in *ḫimetu*-ghee and beer, [bind on] on a cloth, *AM.* 100, 3, 13. *Poison of limbs*, a *NAM-NE-ŠUB tabu*, with sumach (probably no more) pound together, steep in *kurunnu*-beer, bind on on a cloth, cold, *AM.* 15, 3, 16. [Poison] on feet, †, *AM.* 70, 7, ii, 4. Against an evil *alū*-demon, with sumach, bind on (*Aš-su*), *KAR.* 186, 47. For *miḫiṣ zuqaqipi* (*PA-iš MIR*, parallel to *GAZ GIR-TAB* in the same group), i.e. scorpion sting (?) (normally *ziqit aqrabi* or *zuqaqipi*), alone, drink in *kurunnu*-beer and anoint in oil, *Pl.* 23, 12 (dup. ? Scheil, *RA.* 1918, 75) (the treatment suggests gout rather than a simple sting of a scorpion).

Int.: Breast hurting and top of stomach pressing ("lung trouble"), †, in beer or wine drink, *AM.* 48, 4, r. 10.

(2) *Seed*: To stop pain (*ašî*) bray with sumach, anoint in oil, *AM.* 16, 4, 2. "Sickness on foot (leg) of man" (gout?) bray, with seed of *mastakal*, put on the place, *AM.* 74, 1, iii, 2. *Head*, †, anoint in oil, *KAR.* 202, ii, 15.

(3) Uncertain whether simply, or seed: *Eyes*, bray alone (?), *AM.* 11, 2, 36. A blow on the side, with sumach, etc., dry, pound, sift, mix with ground flour, steep in . . . , spread on a skin, [bind on] warm, *AM.* 79, 1, 21. To remove poison, †, drink in *kurunnu*-beer and anoint in oil, *AM.* 29, 2, 5.

Colchicum in Mesopotamia (Ainsworth, *Assyria*, 34): numerous species, Syria and Palestine (*FP.*² ii, 611 ff., *FJ.* ii, 157). In India *C. autumnale* does not occur, but there are two forms in the bazaars, the bitter and the sweet (*CPI.* 398). The deleterious qualities of *Colchicum* were well known to the ancients, and there are numerous later warnings against its careless use. The warning in *P.* 426 that "it may produce gastric or intestinal irritation, even in ordinary doses" will explain its rare internal use in *MT.*, which prescribes it more usually externally. In other pharmacopœia this *ext.* use is recognized, "when applied to the skin it acts as a powerful irritant causing local pain (*EB.* 11th ed., xi, 662): *IB.* 1249 says that it dries up old ulcers: the *New Cycl. of Botany*, i, 139, says "as an external application, a few fresh bulbs, sliced, bruised, and mixed with a bread poultice, may be applied to gouty parts". Its more common use (both the corm and the seeds) is internal; "much prescribed for gout, rheumatism, dropsy, and cutaneous maladies" (*FH.*, 2nd ed., 701).

^{šam}*Kamkadu* is equated with ^{šam}*kudkuddu* in an omen-text (Langdon, *RA.* 1916, 31) "if in a field ^{šam}*kamkadu* appears" (preceded by ^{šam}*ranu* and followed by *arantu* in similar circumstances. ^{šam}*kudkuddu* may perhaps be the Syr. *khadhk^edûthâ* of *SM.* 1, 562, 9. "For teeth which throb: root out the *kadkadûthâ* which is a drug for the eyes, and take the great artery (the sheath?) wherein is moisture, and put it on the tooth".

The Syr. *ḥamšalaitâ*, *Colchicum* is supposed to be the Heb. *ḥabaššēlēth* which represents the Assyrian *ḥabašillatu* (GIŠ-ŠE-RÚ, *VR.* 32, d-f, 62).

C. ^{šam}*Kamme eqli*, *Xanthium strumarium* L. (?).

^{šam}*kamme agurri*, see p. 169.

^{šam}*kamme aškapi*, vitriol of the leather-worker.

^{šam}*kamme gurgurri*, vitriol of the metal-worker.

Pl. 37, K. 4417, 24-7, and *Pl.* 38, K. 5424, B, iii, 9-11, give:—

^{šam} <i>kám-me eqli pišû(u)</i>	^{šam}
^{šam} <i>1k[ám]-me eqli argu</i>	. . . . .
^{šam} <i>[kám]-me šadi(i) pišû(u)</i>	. . . . .
^{šam} <i>kám]-me gur-gur-r[i]</i>	. . . . .

¹ Or ^{šam}*kím-ši* . . .

VAT. 9000 (part dup. of CT. xxxvii, 28, 108860, i, 1-6) :—

<i>šam</i> NI-KU(?)—E(?) <i>rabû(u)</i>	<i>šammu kima mârî</i> ¹
<i>šam</i> <i>kam-me imeri</i>	<i>šammu šá</i>
<i>šam</i> <i>kam-me a-gur-ri</i>	<i>šammu šá pân taḥ-si-e</i> (?)
<i>šam</i> <i>kam-me aškapi</i>	<i>šammu</i> „
<i>šam</i> „	<i>šam</i> šu — <i>uḥ</i> — <i>tú</i>
<i>šam</i> ŠIM — ZI	<i>šam</i> „
<hr/>	
<i>šam</i> LIŠ — A — BAR	<i>šam</i> AŠ — HAR
<i>šam</i> KAK — A — BAR	<i>šam</i> „
<i>šam</i> ZID — A — BAR	<i>šam</i> „
<i>šam</i> <i>mī[r]-gī-ra-nu</i>	<i>šam</i> „
<i>šam</i> ŠÁ — KI — LI	<i>šam</i> „
<i>šam</i> šī-šá-ri (?) ²	<i>šam</i> „ <i>ina Šú-ba-ri</i>

This latter division in VAT. represents the mineral group for antimony (see DACG. 52), and clearly indicates the temporary cleavage from botany which the Assyrian scribe has felt it necessary to make in his gradual invasion of the mineral kingdom which has been brought about by the successive steps from (a) *šam**kamti eqli* and its philological connection with (b) the plant *šam**kamme* and its synonymous mineral “vitriol of the shoemakers”, bringing him to (c), our present text. The same entry into the mineral kingdom occurs again with the salts later on.

VM. (Pl. 10, K. 4218, A, r. vi-v, 4-6 : Pl. 28, K. 4140, A, ii, 6-8 : Pl. 42, K. 14062, 4-7 : Mat. 88, ii, 25-7) gives :—

<i>šam</i> <i>kām-me eqli</i>	<i>ina abanzu-ni</i>
<i>šam</i> <i>kām-me imeri</i> ³	<i>ina aban</i> PAR-AŠ
<i>šam</i> <i>kām-me a-gur-ru</i> ⁴	<i>ina ši-pi-tú</i>

I think that there is little doubt that the evidence all points to *šam**kamme gurgurri* and *šam**kamme aškapi* being respectively “vitriol of the metal-worker” and “vitriol of the leather-worker”, Pliny’s *chalcantum*, *atramentum sutorium* (NH. xxxiv, 32 : AH. 274). Philologically the Neo-Syriac provides *kam* (= Syr. *ekam*), *nigravit* as a cognate (PS. 1751).

*šam**Kamme agurri* is a difficulty, but I think that it must be a mistake. On K. 4140, A, we have certainly the sign *gúr* in place of the sign *a*, which suggests a mistake by the scribe.

At the same time VAT. 9000, Mat. 88, and K. 4218, A (Pl. 10), are definite about the *a*-sign. Yet “vitriol of the burnt brick” is not, to say the least of it, plausible, especially when there is the obvious *šam**kamme gurgurri* in existence.

¹ Or *šam**kim-si* . . .

² Or *kit* (?)

³ K. 14062 apparently indicates this left-half of the line, the right half being missing.

⁴ K. 4140, A, has the important reading *šam**kām-me gúr-[gúr-ri]*, which is possible also on K. 14062 where *gúr* is visible, but this may be the second sign in [*a*]-*gúr*-[*ru*]. K. 4218, A, has *a-gur-ru* : Mat. *a-[gúr]-ri*.

^{šam}*Kamme imeri* "donkey's vitriol", as appears to be certain (although not all the texts are definite), is a curious expression. But in a prescription for gonorrhœa (*mušû*, which has also the value *misû*, yellow copperas): "if a man's urine is like that of an ass, that man is sick of *mušâ*" (*DACG.* 114), the comparison obviously being between the yellowish-green discharge of gonorrhœa (with which word *mušû* shares its other value, copperas), and the peculiar urine of the donkey. In our ^{šam}*kamme imeri* "donkey's *kamme*" we have surely a similar idea.

Our "donkey's chalcantum", representing copperas, is used on ^{aban}PAR-AŠ, white stone, properly alabaster or feldspar (*DACG.* 145) in the *VM.* above, and this can be at once explained by the modern method of staining agate with green copperas to produce "Brazilian cornelian" of a red colour: "in fact the chemical resources of the German agate-worker now enable him to colour a porous stone to almost any desired tint" (Streeter, *Precious Stones*, 5th ed., 39). Chalcedony is one of the cheap materials for staining (Weinstein, *Precious and Semi-precious Stones*, 24), although it must at once be pointed out that, more accurately, chalcedony is properly ^{aban}PAR-AŠ-AŠ, and not ^{aban}PAR-AŠ.

With this suggestion from staining we can see a similar meaning in ^{šam}*kamme agurri* (whether it be a mistake or not, in its use *ina šipitu*) "on grey hair" in the *VM.* above, since copperas is used in the East as a means of staining lips, as Rauwolff (*Travels*, 81) says that in Aleppo "they have still another strange Custom, which Young and Old, Men and Women use in these Countries, viz. They make a thin Paste of Galls and calcined Copperas (to beautify themselves and to keep their Eyes from Rheums) with it they blacken their Lips, and make a ring round about their Eyes". The same substance is used in *VAT.* 9000 above, as a "drug for the surface of *tahsê*", i.e. for the *kelek*-skins, which buoy up the rafts, obviously similar to the "*kamme* of the leather-workers" (Layard, *Nineveh and its Remains*, ii, 98, quotes pomegranate-skins for this; see p. 316). ^{šam}*Kamme* "of the leather-worker" is mentioned in the next line as equivalent to ^{šam}*šuhtu*, verdigris, which is, of course, also used by leather-dressers (*DACG.* 71). For this word *šuhtu*, *VAT.* 9000, gives as another equivalence, in the same register, ^{šam}ŠIM-ZI, which, in the relation in which verdigris stands to collyrium for the eyes, may be connected with the ŠIM-ZI-DA and *šadidu* (stibium) obtained from Hindana by Tukulti-Ninurta (*Ann.* 19).

But *kamme*, so rigorously defined, must also have a value of gall-black, as will be obvious from *AM.* 12, 4, 6: "in fat of the kidney of an ox, black *kima kām-ma ina eli erî*, as *kamma* on copper," paralleled from Pliny, *NH.* xxiv, 26, in his test for pure verdigris: "The fraud may also be detected by using a leaf of papyrus, which has been steeped in an infusion of nut-galls; for it becomes black immediately upon the genuine verdigris being applied." *Kam-mu* is used for eyes in *MT.*, along with *Ammi*, alum, etc., *AM.* 10, 4, 6, and as an ointment for eyes with black saltpetre, powder (*ZID-ZID*) of ^{aban}AS-ĦAR, sulphate of iron, Salicornia-alkali, fir-turpentine, nitre, *Lepidium*, sulphur, ox-fat, A-GŪG, "needle of antimony," and ŠU-LŪ, *AM.* 19, 6, 13. Indeed, the distinction between *kam-mu* (as on *AM.* 19, 6, 8, and 13) and *kam-mu šá aškapi* on l. 10 appears to be kept in such a marked way that simple *kammu* may well

be the vegetable black of the galls, as has already been suggested, contrasted with the mineral "*kammu* of the leather-worker" (which is definitely once, at all events, the mineral *šuhṭu*, verdigris, in *VAT.* 9000 above). Moreover, *VAT.* 9000 gives an equivalence at the head of this section as "drug like gall".

We now come to the actual plant-names compounded with *kamme* which appear in the same category as the "*kamme* of the leather-worker", and "of the metal-worker". *šamkamme eqli*, written simply without the adjectives "white", "green", or "white of the mountain", as on *p.* 168, occurs in the *VM.* to be used on (in) *abanzu-ni* (or *tāk-zu-ni*, or *abaneri-ni*), which is unintelligible to me. The green kind might possibly be *Xanthium strumarium* L., which I saw growing (ripe in mid-October) near Basrah (kindly identified for me by the Department of Botanical Survey to the Government of India), which is used to give a black dye to cloth (*AH.* 275); the flowers are greenish (*FP.*² ii, 42). My informant in this Department kindly adds that Forskål and Delile give the Arab. name as *ḥaraq al-baḥr*, and Ascherson "*shubhey*". I heard *šubbāgh roḥāh* as the local name.

D. *šamZA-GÌN-NA*, *uqnātu*, *Isatis tinctoria* L., woad.

In *Pl.* 33, *Rm.* 356, 6 ff. (restored from the dup. *CT.* xxxvii, *pl.* 31, 108860, iii, 33 ff.) we find after *šamsupalu*¹ = *šammallahtum* the group

<i>šamšá-mi ra-pa-di</i> ²	<i>šamšá-mi uq-na-a-ti</i>
<i>šamšá-mi šir-pi</i>	<i>šam</i> ,,
<i>šamšá-mi šil-qí</i> ³	<i>šam</i> ,,

CT. xviii, 17, K. 4211, 5-7, gives :

.....	<i>uq-na-a-tum</i>	<i>in-zu-ri-[tum]</i>
		<i>ar-ga-ma-nu</i> ("red-purple")
		,, <i>ar-qu</i> ("orange(?)")

Doubtless here *inzuri[tum]* is a mistake for *inzaḥuritum* (*p.* 172).

Obviously in *šamšami uqnāti* we must have a blue colour (connected with *uqnû*, lapis lazuli, and blue). *CT.* xxviii, 17, K. 9892, ll. 9-12, gives :

<i>uq — na</i>	<i>uq-na-a-[tum]</i>
<i>uq-na-a-tum</i>	<i>uq-na-a-[tum]</i>
<i>ši-pat šir-pi</i>	<i>uq-na-a-[tum]</i>
<i>ZA-GÌN-NA</i>	<i>uq-na-a-[tum]</i>

Jensen was right, of course, in seeing the Syr. *qúná'á*, the equivalent stone in this (*Brock.*, 326). The Syr. *qán'á* is *Isatis tinctoria* L., a plant for dyeing blue, found in Palestine (*FJ.* i, 493). *šamZA-GÌN-NA* is used for an uncertain disease, alone "while it is yet green", brayed and anointed in oil (*KAR.* 204, 19). *šamšami uqnátum* is described above as a drug for

¹ 108860, *šamsu-pa-ru*, the line immediately preceding the group giving *šamsi-p[a]*.. = *šam-mal*...

² 108860, *šamšá-mi ra(?)a-di*.

³ 108860, *qí*, and repeats this line, the right-hand column being lost, except for *šam*...

rapadi (uncertain), for *širpi* (dyeing), and for *silqi* (uncertain). All things considered, the word would appear to mean both the blue dye and the cloth dyed with it.

Isatis aleppica Scop. was noted at Qala'ah Sherghat (*Beih.* 31).

Inzahuritum, the Syr. *z^hôrîthâ*, *coccum* (*Brock.* 93, quoting Jensen) occurs in Scheil, *RA.* 1921, 97 (Keiser, *Letters*, 12, 162), $2\frac{1}{2}$ mana *inzahuritu* ana 10 *šiglu kaspi* $\frac{1}{2}$ bilat ^{ria}asi u ^{ria}šimeššali ana 5 *šiglu kaspi* (i.e. $2\frac{1}{2}$ mana of blue(-dye) for 10 shekels of silver, $\frac{1}{2}$ talent of myrtle¹ and *šimeššali* for 5 shekels of silver) in Nebuchadnezzar's time, paralleled by Ebeling, *NBB.* No. 204, where 1 talent of *inzahritu* is worth $1\frac{1}{2}$ mana of silver, a considerable difference in the value. *Camb.* 11, 1, gives the value of 2 mana of *inzahureti* as 2 shekels of silver, which is not far from the latter price. 10 shekels of TUG-ZA-GIN-KUR-RA are mentioned, for a mantle of Bêlit of Sippar, in *Camb.* 4, 1 (*cf.* 3 and 66, 1).

E. [Here may be included *Pl.* 27, K. 4162, which contains, among other things, tanning materials].

Obverse . . . . .	.....
.....	..... ki (?)
.....	..... -ti šadî(i)
.....	..... -ti šadî(i)
.....	[šam] LAL
5.	[šam] LAL
.....	[ša] ^m kasî ŠAR
.....	[ša] ^m kasî ŠAR
.....	[ša] ^m ka-?-ma-tú
.....	šamŠa-maš-qil-la-nu
10.	aŠamaš-qil-lum
.....	šamhi-iš-šur šatani
.....	šamdi-ig-me-nu
.....	šamZU-LUM-MA
.....	šamšu-pa-ta-a-ti šá ti-nu-ri
Reverse	[ša] ^m bu-uq-la-nu
.....	[ša] ^m lid-da-na-nu
.....	šamsi-mat. ^a Adadi
.....	šammu šá pân taḥ-ši-e
5.	šamšá pân taḥ-ši-e
.....	šamšá pân taḥ-ši-e
.....	[š]a(?) kim-si imeri
.....	[š]a(?) kim-si imeri
.....	..... ka-mu-nu
10. . . . .	..... pi-tú
.....	[k]a(?)-
.....	[i]š e-ri-nu
.....	[i]š erinu
.....

¹ Cf. p. 301 for myrtle used in dyeing.

X

THORNY PLANTS

CAPER, THISTLE, STAR-THISTLE, LYCIUM, CAROB, DODDER,
CASSIA TORA, ROSE

A. $\check{s}am$ A-ŠI-A-ŠI, ($\check{s}am$)(i^s)NIM, *baltu*, *Capparis spinosa* L., caper.

Pl. 22, K. 267 + 4180, B + 6069, vi-v, 30 ff.: Pl. 18, K. 4354,
r. xiv-xiii, omitting l. 35, and varying in order:

30.	$\check{s}am$ A-ŠI-A-ŠI ¹	$\check{s}ambal-tú$
	$\check{s}am$ aš-ka-di	$\check{s}ambal-tú$
	$\check{s}am$ a-mu-miš-tú	$\check{s}ambal-tú$
	$\check{s}am$ a-tu-tu	$\check{s}ambal-tú$
	$\check{s}am$ UD-DA	$\check{s}ambal-tú$
35.	$\check{s}am$ NUMUN-GIN	$\check{s}ambal-tú$
	$\check{s}amuš-šám-ri-ḥu$ ²	$\check{s}am$ a-mu-miš-tú
	($\check{s}am$) i^s NIM pi-qi-ni-tú	$\check{s}am$ NIM pi-ši-tú
	AL-UD-DI i^s NIM	$\check{s}am$ ŠE-RÚ i^s NIM

Note Scheil, *RA*. 1921, No. 7, ii, 4:

$\check{s}am$ a-mu-miš-tum | bal-tum

and Von Soden, *ZA*. 1936, 239, 137-8:

a-mu-aš-tum = b[al]-tum
ba-aš-mu = „

Insert here, as there is some connection at the end, *Mat*. 88, 4, 27-31:

$\check{s}am$ ŠE-RÚ GI-MUŠ(?)	.....
$\check{s}am$ ŠE-RÚ arab <i>Uḫli</i>	$\check{s}am$
$\check{s}am$ ŠE-RÚ arab <i>Tašrīti</i>	$\check{s}am$
$\check{s}am$ ŠE-RÚ si-ma-ni	$\check{s}am$
$\check{s}am$ AL-UD-DU bal-ṭi	$\check{s}am$

Cf. the group Pl. 43, K. 4419, ii, 1-3:

[ŠE-RÚ] arab <i>Uḫli</i>	.....
ŠE-RÚ arab <i>Tašrīti</i>	.....
ŠE-RÚ i^s NIM šá a- . . . .	.....

with $\check{s}am$ ŠE-RÚ si-ma-ni, cf. *Luck*. 46, 11, *kima bini qiššē simani*.

$\check{s}am$ *Baltu* may be connected with the word *baltu* "male or female sexual parts", and, recognizing the peculiarity of the Assyrians in making such comparisons,³ we may see their comparison in the curious red fleshy appearance of the trefoil with its three carpels, the red pulp of which is eaten by the Arab children (Sir Richard Burton, *Land of Midian*, ii, *App*. iv, speaks of the red berries of the *Capparis Sodada* Br., eaten in S. Midian).

¹ Cf. Thureau-Dangin, *RA*. 1919, 167, 21, A-ŠI-A-ŠI = a-ḥu-la-ba-ku.

² Cf. Pl. 41, K. 4564, 11-12, . . . pi-ḡu-u = $\check{s}am$. . . , [$\check{s}amuš-šám$]-ri-ḥu = $\check{s}am$ „ (?) .

³ E.g. *aban*PEŠ₄-ANŠU "stone of the sexual part of an ass" (belemnite?): *aban*KA-ŠAL-LA "stone of the mouth of the uterus" (?) (whetstone, *DACG*. 104, 184).

PC. iii, 268 (s.v. "Baghdad") says that the Arabs of the neighbourhood express a sweet juice from the berries and eat the leaves. Forms of the same word appear to be *bal-la* and *ba-la*, equivalent to *a-mu-mi-iš-tu*, CT. xviii, 3; viii-vii, 31-2, preceding *e-gu* = *a-ša-gu* (thorn), and I see no reason to alter my suggestion in 1903 (*Devils*, i, 137) that this is the Syr. *b-l* of PS. 527, a, "*medicamentum quoddam, sc. radix capparis spinosae*." Ashurbanipal (VR. 3, 40) compares the number of corpses of Elamites, whom he had slain, to the ^{is}NIM and ^{is}Ú-GIR. Rich (*Koord.* ii, 394) speaks of the great quantities of caper bushes in flower in the Beni Lam country (in S. Babylonia, between Basrah and Kut). Indeed it is most marked in this southern part of the country, in distinction to that of the north of Mesopotamia. I certainly noted it growing plentifully in the south, but not round Mosul, although I see that FJ. i, 324, is against this: "Sprossen und Blätter werden in Palästina gegessen (ROUBINOV.), auch sonst, z.B. in Mosul, wo man sie sammelt (RITTER 11, 219)." At all events it grows as far north as Qala'ah Sherghat (Herzfeld, *Beih.* 31), Ainsworth saw *C. spinosa* and *C. ovata* at Urumieh (T. ii, 301) and Rauwolff saw at Aleppo "such plenty of capers that they are not at all esteemed" growing on old walls, the natives pickling their flowers before they open (*Travels*, 1, 102). Its noticeable appearance in the south would at all events confirm the appropriate comparison made by Ashurbanipal in his southern campaign.

The capers given in FP.² i, 134-5, are: *C. decidua* Forsk. (*C. sodada* R.Br.: *C. aphylla* Roth.: Arab. *saudād*, *tundub*), *C. sicala* Duham. (*C. spinosa* var. b, L. Arab. *al aṣaf*): *C. ægyptia* Lam. (Arab. *lassaf* (i.e. *al-aṣaf*), *kabar*): *C. parviflora* Boiss.: *C. cartilaginea* Decne.

L. 31 ff. *Šam aškadi* seems to be a descriptive title, perhaps "drug or plant for *aškadi*" (presumably not a mistake for *maškadi*, *parkadi* ?); the outstanding use of the caper is for pickling, but I can find no Semitic root to help us.

^{šam}*Amumištu* does not look as if it were formed from a single Semitic root; rather is it one of the many curious double words, suggesting *amu-mištu*.

For ^{šam}*atutu* I can also suggest nothing, and ^{šam}UD-DA is also used descriptively of ^{šam}PA ^{is}Ú-GIR "tops of the *Lycium* thorn" (to be brayed and anointed in oil alone for this affection (*KAR.* 203, i, 42).

^{šam}NUMUN GIN "setting of seed?", possibly comparable to the O.T. belief that the caper is stimulating to desire (see Briggs-Driver, *Heb. Lex.* 2). ^{šam}Uššamriḫu, another compound word. ^{is}NIM *pikinnitu* (*piqinnitu*) is the equivalent for the "white *baltu*", the reference being to the white flowers of *Capparis spinosa* (hardly "dry caper" here).

For *pir'i* (v. *pirḫi*) ^{is}NIM (*balti*) see p. 177. In AL-UD-DU ^{is}NIM (v. *balti*) as ^{šam}ŠE-RÚ ^{is}NIM, AL-UD-DU = *nabaṭu*, said of stars, an unusual word for the shoots of a plant.

^{is}NIM is used thus in MT.:

(1) *Simply: ext.: Temples*, probably, †, in oil (cedar-oil), *AM.* 4, 6, 9: *dup. KAR.* 182, r. 31.

Int.: Strangury, alone, bray, drink in beer, *AM.* 59, 1, 25.

(There is a tabu on rooting up ^{is}NIM, *Lycium*-thorn, tamarisk, and palm, all of them well-marked denizens of Southern Babylonia, *Šurpu*,

viii, 57.) ^{is}NIM is "the hair on the breast" of the mythical being described in *Tod.*, 32, 13).

(2) *PA.* (tops): Feet unable to support weight of body, †, (*ext.* ?), *AM.* 69, 7, 9, hands and feet, †, [poultice], *AM.* 98, 3, 18.

(3) *Root: ext.*: "which (is) on a grave," †, bind temples, *AM.* 99, 2, 2 + 1, 4, 3, *dup.* 102, 1, 38. "The root of ^{is}NIM-PAR (white caper) which, when thou uprootest it, does not see the sun, a drug for a decayed (*RU-ti*) tooth, dry, bray, mix with oil, apply thereon," *Pl.* 23, K. 259, 10. It is used with the root of *Lycium* from a grave († (?)) to bind on "middle" (pelvis), *etc.*, *CT.* xxiii, 3, 16.

(4) ŠE-RÚ (shoots): *ext.*: for "poison" (red or black bubo), †, bind on, *AM.* 92, 9, 5 + 4, r. 4 (*RA.* 1930, 130): a cataplasm for "poison", †, *AM.* 98, 3, 10 (sim. to Scheil, *RT.* 1901, 134, 5 ff., and Langdon, *BE.* xxxi, 72, 28, see *RA.* 1930, 134). A blow (*mišitti*) on the "front" (*GAB-RI*), †, *AM.* 76, 2, 10. To remove AN-ŠAR . ., bray, anoint in oil alone, *BM.* 122654.

Int.: Strangury, alone, drink, *KAR.* 203, 1, 24.

Fumigate, †, for "poison of all his flesh (limbs)" (dry, pound, sift), *AM.* 91, 1, 5.

(5) *Seed*: Too much saliva in mouth, †, *AM.* 29, 5, 12. *Menstruation* (probably excessive fluid), drink with seed of *Lycium* and root of ^{is}nam-ri *GI*₁₂ (probably mandrake) in beer, *KAR.* 194, r. 5.

(6) SAHAR (dust) of *diki* (?) of ^{is}NIM, †, bind on head for scab or sim., *AM.* 1, 2, 11.

(7) *Fruit*: When the priest cannot remove the Hand of a Ghost from the man, †, anoint in oil, and wear on neck in a skin purse, *KAR.* 184, 20.

The omens show that "if ^{is}NIM-PAR "white caper" appear in a field in the middle of a town, the field will be destroyed, and the (owner) die, *TR.* ii, 56, 18: cf. Gadd, *CT.* xxxix, 6, K. 3840, 1.

The chief uses of the ^{is}baltu or ^{is}baltu *pišitu* ("white caper"), apart from the pickling of the *nibi* (shoots or buds) in *MT.* are paralleled for the most part by later pharmacopœias, the parts in *MT.* used being the simple plant, the *PA* (tops), the root, the ŠE-RÚ, the seed, the "dust of *diki* (?)", and the fruit, and its use in prescriptions for strangury, menstruation, cataplasma, and saliva. *CPI.* 264 points out that *Capparis spinosa* was employed by the Greek and Roman authors, and through them the medical properties of the root were made known to the Arabs, it being very generally employed for liver, spleen, and amenorrhœa. *Diosc.* ii, cciv, prescribes the caper for teeth (cf. the top shoots and leaves, *IMP.* No. 95, of *C. aphylla* Roth) In India the root and bark of *C. spinosa* L. are regarded as astringent, and the powder is used *ext.* for malignant ulcers (*BMM.* 159: cf. *IB.* 1877): the Algerian 'Abd-er-rizāq of the eleventh cent. (*ed.* Gabriel Colin, 53) says that the bark of the root with vinegar is used for splenetic and liver tumours. In Syria the dried leaves in vinegar are applied to ulcers and scabs in the head (*FJ.* i, 329: cf. *SM.* ii, 658). The dried bark is diuretic (*IMP.*, No. 92).

To sum up: ^{is}ambaltu is a thorny plant, cognate to the *b-l* of *PS.* 527, *a*, perhaps caper: esp. ^{is}amNIM-PAR "white caper": *pir'i* ^{is}NIM (*baltu*) the shoots or buds (the buds being particularly used for pickling), and

also *nibi' isbalti* actually prescribed with saltpetre (for pickling): the medical uses being also satisfactory.

B. *šam*ḪA-ḪI-IN, *šam*GIR-ḪA-AḪ, *puquttu*, *Carduus*, thistle.

Pl. 25, K. 4398 + 4418, i-ii, 15-24 :

<i>šam</i> si-kur-rat eqli	<i>šam</i> pu-qut-tú
<i>šam</i> si — kur eqli ¹	<i>šam</i> pu-qut-tú
<i>šam</i> um-mat eqli	<i>šam</i> pu-qut-tú
<i>šam</i> ḪA-ḪI-IN	<i>šam</i> pu-qut-tú
<i>šam</i> GIR-ḪA-AḪ	<i>šam</i> pu-qut-tú
<i>šam</i> UL-ḪA-AḪ	<i>šam</i> pu-qut-tú
<i>šam</i> pu-uq-da-tú	<i>šam</i> pu-qut-tú
<i>šam</i> GIŠ-RIM	<i>šam</i> pu-qut-tú
<i>šam</i> pu-qut-tú	<i>šam</i> ša-mi šu-[bi ?] (see p. 179)

CT. xviii, pl. 4, ix-vii, 1-2 (cf. Pl. 16, Rm. 346, 20-1, and Von Soden, ZA. 1936, 240) :

<i>pu-uq-da-tum</i>	<i>pu-qu-ut-tum</i>
<i>ga-ab-ga-bu</i>	„

It occurs thus in MT. :

(a) *šam*Puquttu :

(1) *Simply: ext.*: probably *Strangury*, as GAR-LAL-ŠAG . . . (“bandage for the head [of the penis (?)]”), unusual, instead of drinking, AM. 60, 1, 4.

Int.: probably *Strangury*, †, [drink], AM. 60, 1, 13 : †, [drink], ib. 15 : †, either in wine or beer [drink], ib. 7 : (doubtless to be drunk), AM. 89, 4, 11. *Jaundice* in beer alone [drink], Scheil, RA. 1916, 37, 27.

By catheter: *Gonorrhœa*, bray, introduce alone into penis in oil through copper (ZABAR) tube, KAR. 193, 21. *Inability to retain urine, etc.*, bray, introduce alone in refined (*ḫalši*) oil into penis by a copper tube, KAR. 155, 2, 24. *Urinary trouble*, †, both drink and introduce by a tube, Lutz, AJSL. 1919, 81, i, 37.

(2) *Seed: ext.*: *Swelling*, †, poultice, AM. 15, 3, 5 (JRAS. 1937, 281).

Int.: *Urinary*, †, in squeezed grapes or beer and refined (*ḫalši*) oil drink, KAR. 193, 5 : †, in wine, milk, or *kuruñnu*-beer, drink, ib. 18. *Strangury*, †, in wine or beer drink, AM. 59, 1, 33 : †, in strong wine or . . . drink, ib. 39. After the prescriptions given above for inability to retain urine, when *sili'-šu* (his ejection (?)) pricks him, †, in beer drink, KAR. 155, ii, 31. For (staying) menses, with seed of laurel and seed of *šam*GUR₅ (*hyoscyamus*) in beer drink, KAR. 194, iv, 8 : similar, dry, bray, drink alone in beer, ib. 14.

(3) PA (tops) *ispuqutte*, in a long prescription, uncertain, KAR. 208, 10.

(b) *šam*GIR(-AḪ)-ḪA-AḪ : *šam*GIR-AḪ-ḪA-AḪ occurs in Lutz, AJSL. 1919, 81, iii, 64, as well as *šam*GIR-ḪA-AḪ, the seed of which is to be drunk with *šam*ŠA-U-U in wine for stone, ib. 81.

¹ Or is it *šam*si-mat eqli, a name for rue, p. 76.

(c) ^{šam}ḤA-ḤI-IN, in some urinary trouble, †, uncertain use, *AM.* 60, 1, 24.

The identification of this plant depends strikingly on iii *R.* 43, iv, 5, a boundary stone: "May Adad, Director of Heaven and Earth, fill the rivers with mud, and *tamerati-šu limilâ puqutta* may he fill his (*i.e.* the enemy's) *tamerati* ¹ with *puquttu*." Adad, as god of the wind, is invited to carry this plant over an enemy's field, *i.e.* thistledown. Cf. iii *R.*, 41, ii, 33: *kima* ²*Nisaba puquttu lihnubi* "like corn may corncockle spring up". I have seen the fields of Baqubah (east of Baghdad) and the *hawiga*-scrub opposite Mosul full of tall thistles.

The plant is used as a simile for the upper lip in the description of the mystical being (*Tod* 47, 15) ³*puquttu šarat su[ḥatišu]* "thistles are the hair of his up[per lip]". It is also used in forms of jewellery: 2 Kİ-SUḤUR *pu-qut-ti ḥuraši* (5th year of Nazimaruttas, Legrain, *PBS.* xiii, No. 80, 9, cf. p. 10). Beck (*Arch.*, 1927, 29, B, 1, b) gives an example of a corncockle pendant in faience from Egypt.

Carduus Marianus L. grows in Syria (*FP.* ² ii, 93) and at Mosul (the specimen which I took home was kindly identified for me by Dr. A. B. Rendle, F.R.S.). Its seeds were formerly thought to cure hydrophobia, and in Germany jaundice; the root is also used (*FHS.*, 2nd ed. 557). Note also John Hill, *Useful Family-Herbal*, 367, on *Carduus Mariae*: "the root and seeds are used. An infusion of the fresh root removes obstructions, and works by urine; it is good against the jaundice." *C. Benedictus* (*FHS.* *ib.*) stimulates the liver; *Carlina vulgaris* (*ib.* 538) is diaphoretic and purgative. Pliny (*NH.* xxii, 43) says that the *Scolymos* (supposed to be either the *Scolymus maculatus* L. or *S. Hispanicus* L., Bostock, *ib.*) is diuretic, and the *Sonchus* (*Sonchus oleraceus* L.) (*ib.* 44) carries off calculi. Rich (*Koord.* i, 143) mentions thistles (to nourish horses) in Kurdistan. *FJ.* ² i, 407, mentions the *Cynara* (Arab. *taskir*) and the *Dipsacus* (Arab. *ʿašana*, *ib.* 587; *D. sylvestris* Huds. and *D. laciniatus* occur in Syria (*FP.* ² i, 611).

In the *VM.* it occurs twice:

(1) *Pl.* 42, K. 274, 16: K. 8764 unpub.: *Mat.* 88, i, 85:

^{šam}*pu-qut-tu* | *ina tak(aban)-šu(rik)-bi*

(2) *Pl.* 10, K. 4218, A, i, 5: *Pl.* 44, K. 4152, i-ii, 17: Meek, *RA.* 1920, 181, S. 1701, i-ii, 8: *Mat.* 88, i, 43:—

^{šam}(*v.i.s*)*puquttu(m)* | *ina aban ašakki* (*v. ašakku*)

Both of these quotations are difficult to translate. In *DACG.* 171 I suggested that since the thistle is diuretic, the "stone of *ašakki*" might perhaps mean calculus, especially since the *Sonchus* is said to have the property of carrying off calculi. In the other case *aban šubi* (perhaps paralleled by ^{šam}*šami šu-(bi)* (p. 178) might mean "stone of flux" (for *zāba*), or possibly it might refer to dyeing (*šabû*) a stone. But both are hazardous.

The form *puqdatu* allows us to settle the root as *paqâdu* or *baqâdu*,

¹ *Tamerati*: Belser, *BA.* 1894, ii, 143, in translating this passage, makes it "Flur, Umgebung einer Stadt". Bezold, *BAG.* 290, gives the meaning of one *tamertu* as "Umgebung, Flur", and another (*ib.* 43) "(voller) Teich, Fisch-Weiler".

and therefore, although its connection with other Semitic roots is not clear, obviously it cannot be connected with the Heb. *barqânîm* (with the *r* lost as in *kussu*, Arab. *kursî*, etc.).

^{šam}*Gabgabû* is uncertain. ^{šam}*Sikurrat eqli* "lock (bolt) of the field"; ^{šam}*ummat eqli* (used also in the shortened form ^{šam}*ummat*) "army of the field", both descriptions admirably fitting the thistle. ^{šam}*GIR-ĦA-AĦ*, ^{šam}*UL-ĦA-AĦ* with ^{šam}*ĦA-ĦI-IN* suggest a similarity of sound with the Heb. *ḥôḥ* "thistle", *GIR* being "a point". ^{šam}*GIŠ-RIM* is made up of *GIŠ* "wood, tree", and *RIM*, a spherical or globular flower-head (see p. 272), which well represents the thistle-top (parallel to ^{šam} *isû-GIR-RIM* "thorn and flower", *Centaurea*). To sum up: The evidence that the wind carries the seeds is very strong to prove that ^{šam}*puquṭtu* is the thistle, and this is corroborated by the use of the gold thistle-head as a form of jewellery. In *MT*. ^{šam}*puquṭtu* is used for strangury, jaundice, and urinary trouble, which is well paralleled by the use of thistle in later medicine.

- C. 1. ^{isû}*-GIR*, ^{šam}*ašagu*, thorn in general, but esp. *Lycium*, *Berberis*.
 2. ^{šam} ^{isû}*-GIR-RIM*, ^{šam}*dadānu*, *Centaurea* (prob. *Calcitrapa* L.),
 Centaury, Star-thistle.
 3. ^{šam}*Allu(m)zi*, ^{šam}*šimaḥu* (thorns).
 4. ^{šam}*ERI-TIL-LA*, ^{šam}*ḥarubu*, *Ceratonia siliqua* L., carob.
 5. ^{šam}*Kiššatu*, *Cuscuta* sp., Dodder.

These occur in syllabaries thus:

(A) *Pl.* 21, K. 267 + 4180, B + 6069, Cols. v-vi:

11.	^{šam} <i>i</i> — <i>gi</i> ¹ ^{šam} <i>da-da-a</i> ^{šam} <i>ša-mi šadî(i)</i> ^{šam} <i>inib šadî(i)</i>	^{šam} <i>a-šá-gu</i> ^{šam} <i>a²-še-gu</i> ^{isû} <i>-GIR</i> ^{isû} <i>-GIR</i>
15.	^{šam} <i>GI-RIM</i> ^{šam} <i>a-ma-r[i-du]</i> ³ ^{šam} ^{šam} ^{isû} <i>-GIR-[RIM]</i> ^{šam} <i>gur-ba-si</i> ⁴	^{isû} <i>-GIR</i> ^{šam} <i>a-šá-gu</i> ^{šam} ^{isû} <i>-GIR</i> ^{šam} <i>da-da-nu</i> ^{šam} „ ⁵ <i>ina Šu-ba-ri</i> ^{šam} „ ⁵ <i>ina Qi-na-ḥi</i>
20.	^{šam} <i>a⁶-bi-tu</i> [^{šam} . . - <i>ša</i>] <i>k-ku</i> ⁷ [^{šam} <i>sa-a</i>] <i>m⁸-tu</i>	^{šam} „ ⁵ <i>rabû(u)</i> ⁸ <i>ina Qi-na-ḥi</i> ^{isû} <i>-GIR ina Me-luḥ-ḥi</i>
25.	[^{šam} <i>ERI</i>] ¹⁰ <i>TIL-LA</i> 11 [^{šam} <i>ša</i>] <i>-am da-da-a</i> ^{šam} <i>AŠ-PI-[PI (?)]</i> ^{šam} <i>šá-mi</i> ^{isû} <i>-G[IR]</i> ¹² ^{šam} <i>KUR-AB-D[U]</i> ^{šam} <i>ḥîl šim-ta-t[e]</i> ¹³ <i>zir</i> ^{isû} <i>-GIR</i>	[^{šam} <i>ḥ</i>] <i>a-ru-bu</i> [^{šam}] <i>ḥa-[ru]-bu</i> ^{šam} <i>ḥa-[ru]-bu</i> ^{šam} <i>ḥa-[ru]-bu</i> ^{šam} <i>ḥa-r[u]-bu</i> ^{šam} <i>ḥîl</i> ^{isû} <i>-[GIR]</i> <i>ZID TU-ḤU[^{pl}]</i> ¹⁴

¹ *CT.* xviii, 3, vii-viii, 33 (cf. *ib. pl.* 16, Rm. 346, 7): *e-gu* = *a-šá-gu*.

² Less probably *e*.

³ *CT.* xviii, 3; vii-viii, 34, *a-ma-ri-du* = „, (i.e. *a-šá-gu*).

⁴ From *Pl.* 46, Rm. ii, 203, i, 6 (= ^{šam} ^{isû}*-GIR* . . .), *ib.* ii, 6) and 108860, iv, 8 (*CT.* xxxvii, 31) (= ^{šam} ^{isû}*-GIR ina Šu-ba-ri*).
⁵ 108860, ditto.

[Footnotes continued on next page.]

(B) VAT. 9000 :

(a)	<i>šam</i> al-lu-zi	<i>šam</i> ši-[ma]-hu ¹
(b)	<i>šam</i> du-su-su	<i>šam</i> „
(c)	<i>šam</i> a-bu-li-li	<i>šam</i> „
(d)	<i>šam</i> šá-mu mi-sír lîb-bi	<i>šam</i> „
(e)	<i>šam</i> šá-mi mi-qit lîb-bi	<i>šam</i> „
(f)	<i>šam</i> te-gi-lu-u	<i>šam</i> „
(g)	<i>šam</i> du-az(!)-du-mu ²	<i>šam</i> „
(h)	<i>šam</i> U ₄ (ú)-ME-DA	<i>šam</i> „
(i)	<i>šam</i> ši-ma-hu	<i>šam</i> e-ti-tú
(j)	<i>šam</i> (pi-iu-u)NAM	<i>šam</i> „
(k)	<i>šam</i> šik-kat eqli	<i>šam</i> „
(l)	<i>šam</i> Ů-GIR	<i>šam</i> „
(m)	<i>šam</i> inib Ů-GIR	<i>šam</i> bu-li-li ³
(n)	<i>šam</i> GŮ-GAL	<i>šam</i> „
(o)	<i>šam</i> bu-li-li	<i>šam</i> inib Ů-GIR <i>sámu</i>

(C) Cf. Pl. 37, 81-2-4, 254, 6 ff.

.....	<i>šam</i> ši-ma-hu
.....	<i>šam</i> „
.....	<i>šam</i> „
.....	[<i>šam</i>]du-uk-du-mu <i>šam</i> „
5.	[<i>šam</i>] „
.....	[<i>šam</i>] „
.....	[<i>šam</i>] „
.....	[<i>šam</i> ha(?)]-r[u(?)]-b[u ?]

(D) Meissner, MVAG. 1913, 70, 80 ff. :

80.	<i>iš</i> Ů-GIR	<i>iš</i> -ti-tu
	<i>iš</i> GURUN Ů-GIR	a-bu-li-lu
	<i>iš</i> GUL-? ⁴	Ditto
	<i>iš</i> GUL-?-GA	Ditto
	<i>iš</i> GUL-DIR	pi-en-du-ú
85.	<i>iš</i> SUR-GUL	Ditto
	<i>iš</i> BIR-GUL	Ditto
	<i>iš</i> Ů-GIR	a-ša-gu

¹ A form *e-bi-tú* occurs, Pl. 46, Rm. ii, 203, i, 7, and *e-bi-tum*, 108860, iv, 9. Perhaps add here CT. xviii, 3, vii-viii, 35 (cf. ib. pl. 16, Rm. 346, 9), a-bú (v. mu) -ú =, (i.e. a-šá-gu) (Von Soden, ZA. 1936, 239, 141).

² .[š]ak-ku clear on K. 267, but see further, p. 185.

³ But *ma* on 108860, iv, 11 (i.e. for GAL).

⁴ Restored from Pl. 46, Rm. ii, 203, i, 8, and 108860, which latter has *šam*ša-am-tu after *šam*e-bi-tum.

¹⁰ This plant occurs Pl. 46, Rm. ii, 203, i, 4.

¹¹ Perhaps add here 108860, iv, 7, . . . šá-mu(?) . . . -ru = *šam*ditto (i.e. *šam*ha(!)-ru-bu).

¹² Pl. 46, Rm. ii, 203, i, 5, *šam*šá-mu *iš*Ů-GIR.

¹³ Additional from VAT. 9000, *šam*hîl šim-ta-te = *šam*Ů-GIR, *šam*hîl Ů-GIR; *šam*hîl Ů-GIR = *šam*GĀN-ZI šá šad(i)šamla-pat ra-man-nu (see p. 13).

¹⁴ Cf. 108859, ii, 3 (CT. xxxvii, 26).

¹ Cf. Meek, RA. 1920, 181, S. 1701, iii, 5: Mat. 88, ii, 16, *iš*al-lu-zi | ina šim-ma-hu (VM.).

² Cf. above, (C) l. 4, and Pl. 31, K. 8846, 7.

³ CT. xviii, 36, iii-iv, 25, . . . inib *iš*Ů-GIR =, (i.e. aban) ha-[ru-bi]: Meissner, MVAG. 1913, 2, 27, 82, *iš*inib Ů-GIR = a-bu-li-lu. ⁴ SAI. 505.

1. ³Ú-GIR, *ašagu*, thorn, especially *Lycium*.

³Ú-GIR is made up of ú "plant" and GIR "pricking point", GIR being also used in such a word as [³G]EŠTIN-GIR ("prickly vine") = *murdinu* "bramble", *Mat.* 1, i-ii, 12. *Ašagu* = the Arab. '*ausaj*' ('*eusaj*'), *Lycium Europæum* L. (Pick, *Assyr. u. Bab. Talm.* 32 : *FP.*² ii, 260) (*Rhamnus*, *IB.* 1602). Dr. A. B. Rendle very kindly identified the specimen of '*ausaj*' of Mosul which I sent him as one of the Acacias. *Lycium Europæum* is common in Syria and Palestine (*FP.*² ii, 260) : Sir Richard Burton (*Land of Midian*, ii, App. iv) speaks of the *Lycium europæum* L. ("'*aušaz*'") as being eaten by animals in Middle and South Midian.

"The '*ausaj*' is a 'species of thorn having a round red fruit, like the carnelian bead, which is sweet, and is eaten', or 'a species of thorn trees, having a bitter red fruit, in which is acidity . . .'. It is clear that the term '*ausaj*', and therefore '*atād*', must have been applied to a number of plants" (Post, Hastings' *DB.* iv, 751). The "round red fruit" is confirmed by *VAT.* 9000 (o), and *MVAG.* (see *p.* 181) (a)-*bu-li-li* = *šaminib* ú-GIR *sámu* "red fruit of *ašagu*".

Like '*ausaj*' (and *âtádh*) ³Ú-GIR, apart from any particular equivalence, appears to have a general meaning "thorn", as its Sumerian would suggest. It is given the equivalent *itti(t)tu* (the Heb. *âtádh* "bramble, buckthorn") in Reisner, *Hymnen*, No. 60, 15, and Meissner, *MVAG.* 1913, 2, 27, 81. *Ittittu* is given as a simile of the magic plant in *GE.* xi, 268 : "there is a plant with a . . . like *ittit[ti]*, its prickles like *amurdinu* (bramble)." *šam*-ú-GIR is given as providing *šarat kappalati-šu* ("hair of his *kappalāti*") in the description of the mythical being in Ebeling, *Tod* 32, 13 (*KAR.* 370).

³Ú-GIR occurs thus in *MT.* :

(1) *Simply* : as a fuel to use in fumigating with drugs (*pi-en-ti* ³Ú-GIR "charcoal of thorns"), *AM.* 98, 1, 11. A "fire of *ašagu*", mentioned in fumigation, *CT.* xxiii, 26, 11 : 28, 31 : 43, 7 : *AM.* 54, 1, 8, etc.).

(2) *ŠE-RÚ* (shoots) : *ext.* : For "poison of the flesh", poultice, *AM.* 92, 4, *r.* 4 : perhaps the simple ³Ú-GIR (following *ŠE-RÚ* ³NIM, as in the previous quotation) may be intended for *ŠE-RÚ* in *AM.* 98, 3, 10, as a poultice, †, for "poison". For *QI mišitti* ("the result of a blow") on the "front", † [poultice, or bathe], *AM.* 76, 2, 10 : for a blow (*mišitti*), the hands and feet being without strength, † [bathe], *AM.* 82, 2, 5. For a bruise (*dikšu*), †, in cedar-blood [anoint], *KAR.* 182, 20.

Fumigation : dry and fumigate for "poison of all his flesh", †, in fire, *AM.* 91, 1, 5.

(3) *Root* : *ext.* : *Toothache*, apply alone ("which, when thou pullest it up, the sun does not see"), *KAR.* 203, i, 7, *dup.* *Pl.* 23, K. 259, 7. *Temples* ("root of ³Ú-GIR, which is on a grave"), †, bind, *AM.* 102, 38. Uncertain, anoint alone in oil, *KAR.* 203, i, 38 (Prob. *Hand of Ghost*), †, anoint, *AM.* 97, 4, 4.

Int. : *Strangury*, *ŠE-SUN* of the root of ³Ú-GIR, bray alone, drink in beer, *AM.* 59, 1, 24 : simple root, drink in beer, *ib.* 25. Perhaps [root], for (overmuch) saliva, †, *AM.* 31, 4, 22 (uncertain use).

(4) *Sikti* : 15 grains, †, apply by anus, *AM.* 31, 4, 22.

(5) ZID (powder): *Urinary trouble*, ZID ^{is}Ú-GIR IḤ-ḤA-AḤ (but cf. ^{šam}GIR-ḤA-AḤ, *Pl.* 25, 20), drink in beer with powder of ^{šam}NAM-RI-UŠ, Lutz., *AJSL.* 1919, 80, 2.

(6) ZID-ZID (fine powder) ("of ^{is}Ú-GIR which sprouts on his building") for [scab] on head, †, prob. *ext.*, *AM.* 1, 2, 18.

(7) *Ḥīlu*(gum) (cf. quotations from the syllabary at the head of this section, p. 180, i.e. *ḥīl šimṭa[te]*).

(8) *Seed*: with seed of caper and root of male mandrake (^{is}NAM-RI-GIRA) for some difficulty about menstruation (prob. overmuch, or painful) drink in beer, *KAR.* 194, iv, 5.

(9) *P.A.* (tops), i.e. ^{šam}PA ^{is}Ú-GIR | ^{šam} UD-DA, i.e. a drug for sunburn (?), to be brayed and anointed alone in oil, *KAR.* 203, i, 42 (^{šam}baltu is also a drug for ^{šam} UD-DA, p. 175).

(10) *CT.* xii, 48, v-vi, 3, GIŠ-ŠÁ-KI-LUḤ-ḤA-GIŠ-GIR = *ab-nu ša a-ša-g[i]*.

(11) *Inib* ^{is}Ú-GIR, bray, †, for swelling, *KAR.* 192, ii, 5: "while yet green" bray alone, bind on swelling, *KAR.* 192, 37.

(12) ZID *inib* ^{is}Ú-GIR (probably) "powder of the fruit of *Lycium*", *ext.*, *KAR.* 192, iii, 17.

^{is}Ú-GIR must, from the uses in *MT.*, represent, in one of its phases at least, a definite thorn-plant used as a drug, and not (in *MT.* at all events) a general word for thorn. The Arab. '*ausaj*', *Lycium*, fits admirably.

Diosc. i, 132, prescribes *Lycium* for eyes, ears, ulcered gums, pruritus, menses, dysentery, and blood-spitting. *IB.* 1602 prescribes the leaves of '*ausaj*' for children's eyes, the juice *ext.* and *int.*, and the branches in fumigation against venomous beasts. *P.* 242 prescribes the bark of the root of *Berberis vulgaris* L. (which contains an alkaloid named Oxyacanthine, *FHP.*, 1st ed., 1884, 35), as a bitter tonic. Asaf Judaeus (i, 173) says that *Rhamnus*, *aqanthá*, and *átád* are good for toothache. (For *Lycium* mentioned in the *Periplus*, see Schoff, *Periplus*, 169, and a good description, *FHP.* *ib.* 34). In India *Berberis Lycium* Royle (stem, fruit, root-bark) is used in medicine, *CPI.* 130.

On the other hand the definition, not infrequent, of ^{is}Ú-GIR growing on a wall (*pitiqti*, *AM.* 1, 2, 18: 67, 1, 24), grave (KI-MAḤ, *AM.* 99, 3, r. 15: 102, 1, 38), *tarammu* (*AM.* 88, 2, 8), and even a house (Gwynn, *PSBA.* 1914, 242, 26) must indicate a peculiarity in a thorn-species which is not necessarily characteristic of the *Lycium*: indeed, so plentiful were the ^{is}baltu and ^{is}ašagu near Susa that Ashurbanipal compared them to the numerous corpses which filled the ground round about (*VR.* 3, 40). A field of Ú-GIR is mentioned, *TURk.* 13 (Bur-Sin), which suggests some other thorn rather than *Lycium*.

While, therefore, we accept ^{is}Ú-GIR as (a) "thorn" in general, and (b) as *Lycium* in particular. (especially since *ašagu* = '*ausaj*'), certain characteristics, particularly of its growth on walls, *etc.*, suggest that the ^{is}Ú-GIR may also represent that very common thorn of Mesopotamia, especially in the south, the '*aqūl*', the *Alhagi Maurorum* or camel-thorn. So common is this plant, indeed, that it can hardly have been left out in the Assyrian botany; and the need for identification becomes the stronger when it is remembered that the '*aqūl*' produces a manna (and

that Aleppo people use it as a purge, *Rauwolff* i, 85). Consider the following :

(a) ^{šam}Igi, *egu*, probably the Aram. 'āgā (*hāgā*), the *Alhagi Maurorum* (perhaps in the Carchemish tablet in my translation in Woolley's *Carchemish*, ii, 139).

(b) ^{šam}Dadā (occurring in the next group in [^{šam}ša]-*am dadā* = ^{šam}ha-[ru]-*bu*, the latter being the carob, perhaps cognate with ^{šam}dadānu, l. 18 (= ^{šam}isū-GIR, which is probably ^{šam}isū-GIR-RIM).

(c) The equivalence of ^{is}ū-GIR as ^{šam}šami šadi "drug of the mountains", and ^{šam}inib šadi "fruit of the mountains" is of little help.

(d) ^{šam}GI-RIM "blossom on a stalk" (see ^{šam}isū-GIR-RIM, below).

(e) ^{šam}Amaridu, *i.e.* *awaridu*, has every probability of being the Arab. *ward* "rose", *i.e.* the rose with its thorns (paralleled by *amurdinnu*, *awurdinnu*, bramble, p. 327). Cf. *CT.* xviii, 3, viii-vii, 34, *amaridu* =, (*i.e.* *ašagu*).

(f) ^{šam}Samtu, the name for the thorn in Meluḫḫi, is, as was pointed out by Meissner (*OLZ.* 1903, 266) the Arabic *sant*, *Acacia Nilotica*. ^{šam}Hil šimāte (= ^{šam}hîl ū-GIR) may be a cognate; at all events it is a gum or gum-resin (see p. 186), and may be gum arabic. It is used with myrrh for hollow teeth, *Pl.* 23, K. 259, 14, *dup.* *KAR.* 203, i, 13.

So much, therefore, for ^{is}ū-GIR, *ašagu*, which appear to mean "thorn" in general, but more particularly *Lycium*, and perhaps *Alhagi Maurorum*.

2. ^{šam}isū-GIR-RIM, *dadānu*, *Centaurea* (*pallescens* Del, or *Calcitrapa* L.), *Centaury*, *Star-thistle*.

The Sumerian means lit. "thorn + flower", which should be easy to trace. The description fits certain of the "thistles" of the O.T. (as distinct from ^{šam}puḡuttu, p. 178), and the evidence will show that this is worth following up.

The Heb. for "thistles", *dardar*, is accepted as being one of the Centaury-plants. Post considers it to be the *C. pallescens* Del. (in Arabic *dardār*) with yellow flowers and very bitter (cf. *FP.*² ii, 116: *FCH.* 41): Löw (*Ar. Pfl.* 427) cites Petermann as thinking it *C. Calcitrapa* L., the ordinary Star-thistle. (Cf. also Smith, *DB.* iii, 1491, on *C. Calcitrapa*.) There is no doubt about the thorniness of this plant ("the involucrel bracts end in stiff spreading spines"), and it has flower-heads (*i.e.* RIM), *HBF.* (1858), 319.

The description given by Post in Hastings' *DB.* iv, 751, bears this out:

"One of the spectacles most striking to a stranger [in the Holy Land] . . . is that of a flock of goats, browsing in a patch of *Eryngiums*, or *Cirsiums*, or prickly *Centaureas*, and crunching down the heads, a couple of inches in diameter, composed of stiff thorns." *šaukat al-dardār* is the generic Arabic term for the thorny *Centaureas* (*ib.* 752). At least two, perhaps three, plants were known to the Greeks by the name *τριβόλος* but he says (*ib.*) that some have identified the thorny *Centaureas* with one form of it.

^{šam}isū-GIR-RIM occurs thus in *MT.* :

(1) *Simply*: *Ext.*: for a blister (*šagbanu*) "reduce" alone, bray, and apply locally, *AM.* 75, i, iii, 29. Trouble in the temples, †, bind, *KAR.* 202, iii, 29: *CT.* xxiii, 43, ii, 27.

Int.: "Retention" (*hinqti*) with *Asa foetida* and one other [drink], *AM.* 60, 1, 2: with pine-turpentine, myrrh, and *Asa foetida* (prob. no other drugs), *ib.* 21.

Quantity: 10 carats of ^{šam}š-ĠIR-R[IM(?)] mentioned, *AM.* 83, 2, 11.

(2) *Seed*: *Int.*: "Retention" (*hinqti*) with six others [drink], *AM.* 57, 1, 13, 43. Blood from *anus* (dysentery) with brain of a *suḥur*-fish in boiled wine drink, *KAR.* 191, 2, 9.

(3) *P.A.* (tops): *Ulcers* or similar, †, probably apply, *AM.* 31, 7, 12.

(4) *zid* (powder): *Urinary* trouble (strangury) with *zid* of male mandrake drink in beer, *AM.* 59, 1, 30.

^{šam}š-ĠIR-RĪM is described as *šam ašī*, a drug for appetite (*KAR.* 203, iv, 4, cf. i, 38: *Pl.* 29, K. 4566, 26).

There is a species ^{šam}š-ĠIR-RĪM-KUR-RA (i.e. "of the mountains") of which the seed is drunk in a virility charm, Weidner, *KUB.* iv, 48, 1, 5, and 31.

The medical uses of the Centaury coincide excellently. As *šam ašī* (appetizer) "of all the bitter appetizing herbs . . . which serve as excellent simple tonics, the Centaury . . . is the most efficacious" (*FHS.* 96).

Pliny (*NH.* xxv, 30) says that the leaves of Centaurion (the greater Centaury) are large and oblong, and the root is large, full of a bitter juice, and this may perhaps afford the "rind" of the Assyrian texts. *IB.* 2106, quoting El-Ghafeky, says that the Berbers eat the stalk after the skin or bark has been removed.

In its use for ulcers (or similar), and for its frequency in strangury or similar retention note *IPG.* 125: "la racine, les feuilles, les fleurs (of the Centaurée étoilée, star-thistle) possèdent des qualités diurétiques et fébrifuges."

The synonyms in other lands for this Assyrian word are:

^{šam}*Qurbasi*, the synonym in Šubari, may well be the Syr. *qūrt'bhē*, by metathesis, which is the Greek *τρίβολος*. This some take to be the Centaury (*v.* Löw., *Ar. Pfl.* 429; Smith, *DB.* iii, 1491). It is the equivalent of the Arab. *hasak*, which might perhaps be the original of "the great *dadamu* in Canaan" (*p.* 180), i.e. [^{šam}] . . . -šak-ku. ^{šam}*abitū* or ^{šam}*ebitū* as synonym in Canaan for the Centaury, was taken by *MA.* to be the equivalent of the Aram. *hōbhāi*. Cf. *a-bū-ū* = , (a-ša-gu), *CT.* xviii, 3, viii-vii, 35.

3. ^{šam}*Allu(m)zi*, ^{šam}*šimaḥu*, some forms of thorn.

The third group of thorns. In *MT.* ^{šam}*šimaḥu* occurs thus: (1) *Simply*: *ext.*: *Nostrils*, †, in cedar oil [apply], *AM.* 26, 1, 3. For *dry head with weak hair*, with *Ricinus* and ^{šam}*PAR* (nitre), mix in water and bind on, *CT.* xxiii, 34, 23 (*dup.* *KAR.* 202, ii, 14).

Int. (?) : alone in wine (?) drink (?), *KAR.* 200, r. (?), 6. In *VAT.* 9000, *p.* 181, it is a drug for *misir libbi* and *miqit libbi* (doubtful if *int.* or *ext.*).

(2) *Seed*: *Lungs*, *AM.* 55, 1, r. 4.

(Note the spelling ^{šam}še-ma-ḥa, *KAR.* 207, r. 13.)

In *MT.* ^{šam}*alluzi* (^{šam}*allumzi*, ^{šam}*allumza*) occurs thus:

(1) *Simply*: *Int.*: with lupins, ^{šam}*girana*, *Ricinus*, aloes, etc. (drink), *AM.* 22, 5, 7.

(2) *Root*: Decayed teeth, with mustard-root, apply, *Pl.* 23, K. 259, 13, *dup.* *KAR.* 203, i, 12.

(3) *Seed*: described as "a drug for a bad place", local application, *KAR.* 203, i, 61, following a similar receipt for seed of *Cannabis*.

The meaning is doubtful, but *šamallumzi* may be an anodyne, and is non-poisonous. It is difficult to find cognates for the other synonyms, but, as was pointed out on p. 182, "red fruit of *ašagu*" coincides with the red fruit of the *Lycium*. *šamBulilu* might be the Arab. *bula'lah*, *Centaurea dimorpha* Viv. (*FJ.* 1, 406).

4. *šamERI-TIL-LA*, *šamharubu*, *Ceratonia siliqua* L., carob.

Long identified with the Arab. *harūb*, *Ceratonia siliqua* L. (Meissner, *MVAG.* 1904, 3, 28), which occurs plentifully in Iraq, where, if I remember rightly, I heard it and the Acacia called indiscriminately *harnūb* (a well-known variant for *harūb* (cf. perhaps *FJ.* ii, 388, 402, 406)).

I discussed this tree and the sign *KISAL* (carat) fully in *Iraq*, 1938, i, 23 ff., and will summarize the details here and on p. 193.

šamERI-TIL-LA (= *šamharubu*, means "Plant of the City of Life", with which cf. the Book of Enoch (*FJ.* ii, 401) which says that the carob was the Tree of Wisdom. The modern Arabs consider the carob as the home of demons (*ib.* 398). [*šamE*]RI-TIL-LA is used once in *MT.*, *AM.* 81, 5, 4.

šamŠam dadā = both *šamašagu* "thorn", and the thorny carob. It is possible that we have here, owing to its connection with *šamhīl ašagi* "thorn gum" and *šamhīl šimāte* "gum of *šimāte*" a word for gum arabic. Pliny (*NH.* xxiv, 67) says that "gum acacia is produced from the white and black thorns of Egypt. . . . The juice is left to thicken in the pods, which are steeped in rain-water for the purpose and then pounded in a mortar; after which, the juice is extracted by means of presses. It is then dried in the mortars in the sun, and when dry is divided into tablets."

In *MT.* the *zid* *šharubi* ("powder of carob") is applied, *ext.* to the womb of a pregnant woman, *KAR.* 195, 13. *zid ha-ru-be-e di-ik-ta* ("pounded flour of carob), †, drink in beer for stomach-trouble, *Kū.* i, i, 33. *Aban ha-ru-pi*, †, is prescribed in a poultice (*AM.* 15, 3, 5).

The "seed of *šū-gir*" (*i.e.* carob-seed) = *zid tu-ḥu^{pi}* "doves' dung", *i.e.* the Heb. *ḥarē yōnim*, the carob (*FJ.* i, 601), thus explaining *2Ki.* vi, 25 (the famine in Samaria).¹ It occurs as a drug in *MT.* in *AM.* 1, 2, 11, *zid tu-ḥu^{pi} šā* *šišimmar-kur-ra*² *ud-du-ti*. Simple *zid tu-ḥu* occurs *ib.* 15, both being used, †, for itch in the head; *zid tu-ḥu^{pi}* is [applied], †, to the womb of a pregnant woman, *KAR.* 195, 4, 13. The substance is to be brayed in a mortar used for *lepidium* (*abānNA ZAG-ḥi-li*, *KAR.* 195, 4). Curiously *zid tu-ḥu* is prescribed alongside *zid šha-ru-bi* (*ib.* 13) in the same recipe.

Mention is made of a "carob of the north" (*ha-ru-bi-e ša iltani*, to be reduced in fire, mixed in cypress-oil (and) cedar-blood, and anointed, *CT.* xxiii, 35, 41: and 7 *ha-ru-bi-e ša iltani*, to be reduced in a fire of

¹ This explanation in *FJ.* is in accord with the Assyrian evidence, and is much the most satisfactory of such as have been put forward. Bochart (quoted Smith, *Smaller Bible Dict.*, 136) says that the Arabs sometimes call a chick-pea wrongly "dove's or sparrow's dung" which is, more correctly, *ḥur' al-'ašāfir*, a name of the herb *qily* (Smith, *DB.* i, 449). A pulp from the carob-pod is said to resemble manna (*PC.* vi, 433).

² *šišimmar-kur-ra* = *gu-ru-um-ma* (or *ba-du*, *D.* 356, 55. Cf. the Syr. *g'ramā dh' thamrē*, *FJ.* ii, 340.

reeds, mixed in oil, anointed three times, and three times scraped off, *ib.* 34, 34.

(In continuation of this section on the Carob see *p.* 193, under *kasia*, which would appear to be a late word for the pods of the carob, which is a food and fodder of great value.)

5. ^{šam}*Kiššatu*, *Cuscuta* sp., Dodder.

K. 267, *Pl.* 22, vi-v, 41-2, includes this in a special register after the long groups of ^{šam}*ašagu*, ^{šam}*harubu*, ^{šam}*baltu*, and the short one of *hîl baltî šadî*:

^{šam} <i>kiš-ša-tû</i>	^{šam} <i>šubat</i> [<i>šab-ku</i>]
<i>pir-ki šá BU</i> (?)	^{šam} <i>šubat</i> [<i>šab-ku</i>]

Mat. 6, i-ii, 12-17, perhaps add something:

.....	<i>šu-ma</i>
.....	^{iš} <i>išadî(i)</i>
.....	^{šubat} <i>ša-ab-ku</i>
15.	„ <i>Me-luh-hi-e</i>
.....	<i>lu-pa-a-ru</i>
.....	„ <i>šadî(i)</i>

108860, iv, 12 (*CT.* xxxvii, 31):

^{šam}*kiš*(?)-*šu-tum* | ^{šam} *šubat**šab šu*(!)

Cf. Pl. 35, K. 4180, A, 34, ^{šam}*kiš-šu*...

The first clue is provided by the Syr. *kēšûthâ* “dodder”, as equivalent to ^{šam}*kiššatum* (^{šam}*kiš*(?)-*šu-tum*).

It is a parasitic plant which grows particularly on thorns (and hence its position in the lists): as Löw (*Ar. Pfl.* 171: *FJ.* i, 456) points out, Pliny (*NH.* xiii, 46) says: “we must take care, also, not to omit a peculiar shrub that is planted at Babylon, and only upon a thorny plant there, as it will not live anywhere else, just in the same manner as the mistletoe will live nowhere but upon trees. This shrub, however, will grow only upon a kind of thorn, which is known as the royal thorn. . . .¹ They use it in the preparation of wine, and it is for this purpose that it is planted.”

Löw quotes Boissier (*Diag. plantarum orient. nov.*, second series, No. 3 (Leipzig, 1856), 129) as saying of the *Cuscuta flavescent* that it grows as a parasite on the *Alhagi* (camel-thorn) near Mosul.² Löw also mentions its use in palm wine and beer. *FCH.* 52 says that the Dodder “with its tangle of reddish thread-like stems looks to the fellahin like the hair of an old lady dyed with henna”.

Pirki ša BU (= *markas*) must represent the clinging nature of the parasite, *pirku* being a bolt or similar and *markas* something which binds, although I am not sure that we can get a satisfactory composite

¹ Bostock, *ib.* (vol. iii, 207, n. 28) says that some writers consider this thorn to be the *Centaurea solstitialis* L.

² But this is denied, *FJ.* i, 456, the plant to which the *Cuscuta* attaches itself being different.

translation. Possibly the Targumic *p̄rak* in Pael "to tie dry ears, to untie sheaves or bundles" may suggest the unravelling of the *markas*, or cord, representing the tangled skein of the dodder.

Lupāru, obviously for *lubāru* "dress", represents the appearance of the dodder round the plant to which it clings.

^{šam} *šubat* *šabku* clinches the matter: *šabku* must be the Heb. *s'bhākhīm*, lattice-work, the Arabic *šubbak*, net, etc., which is exactly the appearance of the tresses of the Dodder as it twines round the plant. This synonym will, therefore, mean lit. "net-dress".

^{šam} *Kušakku*, as an apparent synonym of ^{šam} *šubat* *šabku*, should be a word of similar meaning, and here the Syr. *kuškā*, *cingulum*, will provide a cognate. It occurs as ^{šam}BAR *ku-šak-ku ša* PA^{pl} *rapšāti*^{pl} "rind of *kušakku*-with-broad-tops", for stomach-trouble, †, *Kü.* i, ii, 36.

- D. 1. ^{šam}*Qulqullānu*, *Cassia tora*.
 2. *Kasia*, the husks of *Ceratonia siliqua* L.
 3. *SILA-ŠAR*, *kasî*, *rosa*, rose.

I am indebted to *Iraq*, 1938, i, 23, for much of the following.

1. ^{šam}*Qulqullānu* occurs thus in the vocabularies:

(A) *Pl.* 18, K. 4354, xvi-xv, 15-21:

15. ^{šam} <i>gul-gul-la-nu</i>	^{šam} <i>inib ka-si širi</i>
^{šam} <i>zir qul-gul-la-nu</i>	^{šam} <i>ki-sa-at širi</i>
^{šam} <i>ša-mi ra-pa-di</i>	^{šam} <i>ka-si širi</i>
^{šam} <i>gul-qu-la-a-nu</i>	^{šam} <i>ki-sa-at širi</i>
^{šam} <i>a-a-ār si-kir</i>	^{šam} <i>a-a-ār ka-? širi</i> ²
^{šam} <i>zir-gul-gul-la-a-nu</i>	^{šam} <i>zir ki-sa-at širi</i>
^{šam} <i>ut-liš</i>	^{šam} <i>nam-ḥa-ru-u sāmu</i>

(B) *Pl.* 30, 79-7-8, 19, 1-7, and 11-24:

.	^{šam} <i>a-</i>
^{šam} -BA	^{šam} <i>bi(?) -</i>
^{šam} NU-ŠE-GUB-BA	^{šam} <i>in-</i>
^{šam} <i>an-zu-zu</i>	^{šam} <i>ḥa-[di-lu]</i> ³
5. ^{šam} <i>ša-ra-nu</i>	^{šam} <i>ku-r[u-sis-su]</i> ⁴
^{šam} <i>i-ši-in eqli</i>	^{šam} <i>um-[ša-tum]</i>
^{šam} <i>gul-gul-a-nu</i>	^{šam} <i>ki-sat [širi]</i>

(With regard to ^{šam}*anzuzu*, ^{šam}*ḥadilu*, ^{šam}*šaranu*, and ^{šam}*kurussisu*, see Landsberger, as quoted in footnote 3, below. They are probably not plant-drugs at all.)

¹ The ^{šam}*ku-sa ia-a-me* group is divided from a following section (^{šam}A-ZAL-LÁ) on K. 4398 by a horizontal line.

² Re-exd.: it may be KA-SIR, *pî širi*, badly written.

³ See Landsberger, *Fauna*, 37, 52, and 43, C, 1.

⁴ *Ib.* 43, 3, and C, 3.

(C) Note particularly *Pl.* 36, 81-2-4, 267 + *Pl.* 45, 81-2-4, 472 :

11. [šam _i -ši-in (?)] ¹ egli	šamšá-mi mi-sír lib-bi
[šam _{qu}]l-qu-la-a-nu	šamšá-mi mi-sír lib-bi
[šam] šarbatu	šamš[á-mi] šibit(it) lib-bi
[riq]baluḥḥu	šamš[á-m]i „
15. [šam _{qu}]qul-la-nu	šamš[á-mi] . . . parasi(si)

which may be translated

11. "... of the field "	A drug for the " blocking of the stomach "
[šam _{qu}]qulānu	A drug for the " blocking of the stomach "
Šarbatu-willow	A [drug] for the " griping of the stomach "
Galbanum	A [drug] for „
[šam _{qu}]qulqullānu	A [drug] for stopping . . .

šam_{qu}qulqullānu may be compared to the Arab *qulqul*, *Cassia tora* (Holma, *KL.B.*, 82), but there are two other possibilities (v. *AH.* 82): one, the Arab. *qilqil*, a plant with an aromatic seed, black, and very hard, from which the medicament *qilqilān* is made (Razi mentions a plant of this name known in Iraq, where the cooked seeds are eaten, and clothes made of the branches² (Dozy, *Supp.* ii, 398): the other, *qilqilān*, *Dolichos cuneifolius* (Holma, *op. cit.* 81).

Probably the first is correct. *Cassia tora* is given by Forskål (86) as coming from Arabia, and he includes it with other forms of *Cassia*, following it with *C. fistula*. Its Arab. name *qulqul* he applies also to *C. lanceolata* (*ib.*). *IB.* 1822 says that *qulqul* is known in Iraq where it is sown along the irrigation canals; it has seeds like haricots enclosed in pods, and ropes for wells are made from it. In point of fact, it would appear that this is the same as the *qilqil* mentioned above. The Arab. *diḡr al-akbar* is given as a synonym (*FJ.* ii, 515).³ *FJ.* iii, 90, says that *qulqul*, according to *Engler-Prantl.* is also *C. Sophora* L., *Crotalaria retusa* L. In *BMM.* 277 it is obvious from the native names that *C. obtusifolia* L. (= *Senna tora* Roxb.) is a synonym for *C. tora*, an annual weed of which the leaves and seeds are used for skin-diseases, the leaves being applied to inflammations, and the seeds used on ringworm and internally as an aperient.

Now Post (Hastings' *DB.* i, 358; cf. also *CPI.* 310) considers the *Cassia* of the O.T. to be properly *Cinnamomum Cassia* Blume. Although this actually comes from China (*MPB.* ii, 565), there are other kinds which afford *Cassia* and *Cinnamon*, the medical properties of which two drugs are similar (*BMP.* No. 223). What is final is the statement in *MPB.* ii, 566, corrected according to *p. xi*): "*Cassia-Rinde* wird auch noch von anderen *Cinnamomum*-Arten gewonnen; so von *C. obtusi-*

¹ From the previous text, *l.* 6.

² Rauwolf, *Travels*, i, 28, mentions clothes made from the bark of the bdellium of Mecca.

³ It is certainly curious that *Diosc.* i, xii, says that *ξύρον* and *δακρυ* represent foreign words for the *Cassia*.

folium Nees, *C. Tamala* Nees, . . . und *C. parucifolium* Nees." (Cf. also *BMP.*, *ib.*) It is clear that at least one of these species of Cassia in the Near East can be used for the sake of its bark like Cinnamon; indeed, Galen says that the finest Cassia may be substituted for the lowest quality Cinnamon. The evidence for Cassia buds may be seen to be equally important; Cassia-buds are "the unexpanded flowers, when they have attained about a fourth of their complete size, of a species of *Cinnamomum*" and they "have the appearance of nails with heads", and "the uses . . . are the same as those of cinnamon and cloves" (*PC.* vi, 346), the latter word being the French *clou*, a nail. *MPB.* ii, 566, says, "Die die unreifen Früchte einschliessenden abgeblühten Perigone des *C. Cassia* oder verwandter Arten kommen als *Flores Cassiae* (Zimmtblüthen) in den Handel und werden zur Darstellung des Zimmtwassers, sowie zur Gewinnung von ätherischem Oel benutzt."

Cinnamon bark is a carminative, astringent, and aromatic stimulant, and its oil has aromatic and antiseptic properties, and is a powerful local stimulant internally. Cloves, the dried flower buds of *Eugenia caryophyllata*, are aromatic, stomachic, carminative, and antispasmodic, and the oil is an anodyne for toothache. Oil of Cassia from *Cinnamomum Cassia* Bl. is aromatic and carminative, and the oil is a powerful local stimulant (*P.*, under the various headings).

The uses of *šamqulqullānu* in *MT.*, although rare, coincide well. *AM.* 4, 1, 24, prescribes a mixture of . . . -la, leek, and seed of *šamqul-qul-a-ni* for rubbing the head, lest grey hairs should appear, a prescription corresponding to *IB.* 1236 where he says that senna dyes black. Cassia-bark (*Cinnamomum Cassia*) contains tannic acid, which, with a persalt of iron, gives a decoction of blackish-green (*BMP.* No. 223). "Green" *šamqulqullānu* is to be put on decayed teeth (*Pl.* 23, K. 259, 3, *dup.* *KAR.* 203, i, 3), which corresponds to the immature Cassia-buds being used like cloves above, clove-oil being a well-known remedy for toothache. The root of *šamgulgullia-ni*¹ is one of the six drugs² to be applied locally on a cloth to the uterus of a woman who has been given noxious drugs, and her uterus has become full of fluid (*KAR.* 194, r. 4, 31). The bark of *Cinnamomum zeylanicum* is used for uterine hæmorrhage (*BMP.* No. 224); *Diosc.* (i, xii) speaks of the drug from Cassia being astringent (locally to the eyes). On the other hand, if I am right in translating *šamšami misir libbi* as "a drug for the blocking of the stomach", the use of Cassia-leaves as a mild aperient fits well. In the letter *ABL.* 450, 8, *kulkulanu* occurs with *šamabruša*, to wash hands and feet, and in the same letter (l. 11) it appears as *riakulkulani* with *riqli* (pine-turpentine) to be bound with others on part of the man's dress. 1 ditto (= *naruqu*) of *zir qu-ul-qu-la-ni* occurs in the Apothecary's List (Clay, *PBS.* ii, 2, No. 107, iii, 48).

Note, however, that the Cassia of the ancients must not be confused with the Senna of modern times. Senna, according to Carl Martius

¹ *šamGulgulla* (unknown) occurs *Pl.* 39, K. 8287, ii, 10, and *AM.* 31, 7, 6, to be applied in the latter example locally for some sort of pustule.

² It is difficult to be certain of these drugs, since *bīl-lā* "vinegar", which heads the list, might make the total seven, and not six. The others are willow, bone (all three "reduced"), a mineral (?), fruit of *šadani* and chamomile.

(*Versuch einer Monog. d. Sennesblätter*, 1867; *FHP.*, 1st ed., 1874, 191) cannot be traced earlier than the ninth to tenth century A.D. Western Europe owes the introduction of this drug to the Arabic physicians, and Isaac Judæus, a native of Egypt, who wrote about A.D. 850-900, mentions senna, saying that the best came from Mecca. But at all events we can take it that *šamqulqullānu* is a form of Cassia with a medicinal bark, and with this we can examine the synonyms:

(a) *šamKisat šîri*, *šamkasi šîri*, *šampî(?) šîri*.

Sayce (*ZK.* ii, 215) was right in comparing *kisat* with *kisiti* "bark, rind" (*kisiti iserini*, *Anp. AKA.* 284, 87), from *kasû* "to cover" (Syr. *k'sâyâ* "covering"), and we can therefore hardly be wrong in seeing in the above synonyms meaning "sloughed skin of a snake" the alchemists' term for the Cassia-bark thus stripped.¹ Here we have the history of our word Cassia, as Kûchler saw (*Kû.* 73) (i.e. the Aram. כס״א דטורי), which was ultimately to find its philological descendant in the late Babylonian *kasia* (not with the meaning Cassia, but the husks of the *Ceratonia siliqua*, which latter Syriac adopted in the form *qasyâ*,² the Heb. *q'sî'âh* of Ps. 45, 9, may have a different history).

Other synonyms are (a) *šaminib kasi šîri* ("fruit of the sloughed snake-skin", Cassia); (b) *šamzir kisat šîri* "seed of the sloughed snake-skin", Cassia); and (c) *âr šamsikir*, the *âr* perhaps being the ordinary *âru* = *PA* (tops) (it is hardly likely to be the same as the *a-a-ar* in *a-a-ar ilî* "chamæleon" or *šama-a-ar huraši* "anemone").

An interesting parallel to *šamkasi šîri* is the Arabic *salîhâh* "peeled", with the same meaning as the Heb. *q'sî'âh*, Cassia, closely connected with *silh*, the sloughed skin of a snake. Indeed, there is a drug in *IB*, 1210 *silh al-hâyyâh*, sloughed skin of a snake, which, when boiled in vinegar, is said to cure toothache, which looks much like our Cassia on p. 190 (for hollow teeth), as though the Assyrian synonym "sloughed skin of a snake" had been adopted.³

(b) *šamNamharû sâmnu*. *Namharû* is philologically perhaps parallel to the form *nab-ra-ru-û* (*Shalm. Mo.* iii, R. 8, 100; *Amiaud and Scheil, Les Inscr. de Salm.* 42). If we derive it from *maḥâru*, the *-u* at the end is difficult to explain: if from *harû* ("to dig"), it might possibly refer to the scraping of the bark: if from *naḥâru*, like *nuhurtu* ("the slit

¹ The Assyrian naturalists were of course well aware of the habit of the snake to slough its skin; cf. *GE.* xi, 289, *ittadi quliptum*, of the snake in the Epic; cf. Albright, *RA.* 1919, 189.

² Löw, *Ar. Pfl.*, p. 348, makes this a form of *C. zeylanicum* var.

³ Since *šamkasi šîri* is called "a drug for the disease *rapadî*" on p. 188, we can discuss this word here. It occurs *CT.* xix, 4, iii-iv, 3-10:

SA- AD-NIM	be-en-nu
SA-AD-GAL	ra-pa-du
SA — PAD	ditto
SA-PAD-A — ŠA ₅ -A	ditto
SA-ḪI-RA-RA	ditto
ḪI — PAD	na-
ḪI- BA-RA-LAL-E	.....

Obviously *rapadu* is connected with SA "muscle" (or sim.). It is included in *MT.* thus: apply (to eyes) *šamra-pa-di* (a drug for *rapadu*) *ina* GIR *siparri* (on a bronze knife), *AM.* 8, i, 23. Note also [*šami ša-ra-pa-di* = ... -[n]a-a-te, *Pl.* 46, K. 4184, r. 8.

plant", *Asa foetida*), it is equally difficult. Yet the "red" (*sámu*) suggests a red bark, perhaps like cinnamon.

It might be added here that "cinnamon" is quoted in *Rev.* xxiii, 13, as coming from Babylon, but there is an obvious distinction between this and Cassia in the offering made by Seleucus II (*FHP.*, 1st ed., 1874, 467), which included two pounds of *κασία* and also of cinnamon.

We can now go on to No. 2.

2. *Kasia* in the late Babylonian contracts, the husks of *Ceratonía siliqua* L.

Although this word is connected philologically with *šamkasi šîri*, it is an entirely different substance.

After the Fall of Nineveh in 612 B.C., when Babylon rose to power, we begin to find in the Babylonian contracts of this period a saleable commodity called *kasia* (*ka-si-ia ka-si-ia*, *kàs-si-ia*). It was measured by *mašihu*, GUR, or PI, and often sold along with ŠE-BAR (barley). It has no determinative, and must be kept distinct from (a) *šamkasi šîri*, Cassia, and (b) *kasi šAR*, rose, neither of which have any botanical connection with it. These contracts on which it occurs are dated in most, if not all, of the months of the year, which suggests that it can be stored away dry like grain (*cf.* particularly Clay, *BEA.* viii, 35, a contract dealing with the period Cambyses 6 to Darius' accession, and recording amounts of 2 GUR of *kasia* for the month Adar, 2 for Tebet, 4 for Sebat, and various other amounts totalling 16 GUR).

Kasia, from its association with barley, and the way in which it is sold, is obviously a foodstuff, and, in spite of the persistent, almost non-Assyrian, way in which it is spelt with a final -a (it may perhaps be borrowed from a foreign source), it should, at first sight, be connected with *kasû* "to cover" (like *šamkasî šîri* and *šamkîsat šîri*). It cannot, however, be the drug Cassia here, since it would be ridiculous to weigh out such a drug alongside barley, and, still more, in such large quantities.

Now, however strange it may seem, I suggest that this Babylonian *kasia* is the same as the husks which the Prodigal Son ate, the *Ceratonía siliqua* L. (see p. 186), a member of the tribe of *Cassiae* ("anomale Gattung der Cassieen", *MPB.* ii, 898: included in the Cassia (*Senna*) family, *FP.*² i, 440). The importance of the pods as a foodstuff and fodder for animals is well known: "Seine Früchte . . . werden von Thieren und Menschen gegessen und bilden einen namhaften Handelsartikel" (Hehn, 440). The husks "are eaten with relish by the common people; and are used extensively by them as an article of sustenance. We had them dry on board of our boat on the Nile in January: steeped in water they afforded a pleasant drink" (Robinson, *Researches* ii, 250, note). "The 'husks'—a mistranslation—are fleshy pods somewhat like those of the honey-locust-tree, from six to ten inches long and one broad, lined inside with a gelatinous substance. . . . In Syria, where we have no swine, or next to none, the pods are ground up" [boiled] "and a species of molasses expressed, which is much used in making certain kinds of sweetmeats" (Thomson, *LB.* 21, *cf.* *FJ.* ii, 406: *FP.*² ii, 440: *IB.* No. 762). Such a pod is in my possession, about six inches long by one broad, and weighing about $\frac{5}{8}$ ounce, and it is dry, hard, and of a deep brown colour.

We can follow this up philologically. Such a value for the Bab. *kasia* suggests a comparison with the Syr. *k'sāya*, *tegumentum*: the Neo-Syr. *qasyā* is a word for the Acacia (*PS.* 3678), a tree which has no little similarity with the *Ceratonia*, and this is paralleled by the Assyrian botanist in his inclusion of the *ḫarubu* (carob, *Ceratonia*) among the thorns, below the Acacia (*p.* 180). Indeed, one of the Arabic words for *Acacia arabica* Lam. is *qarad* = *κερατία*, *FP.*² i, 442. *IB.* 1822 says that the *Cassia fistula* is like the fruit of the carob, and *FJ.* ii, 515, notes that it is called *hermub hindi* "Indian carob". The modern scientific view parallel with this is stated above.

So far, however, the evidence for the equivalence for the *kasia* with the sugary pulp of the *Ceratonia*-pods is slight, but we can now pursue it more definitely through an interesting channel.

The seed from the pod of the *Ceratonia siliqua*, *κερατία*, has always been supposed to be the origin of our carat weight (3.163 grains in 1877). The Romans had the *siliqua* weight of 2.9 gr. (Smith, *Dict. of Class. Ant.*, ii, 455, and for its subsequent discussion, Pauly-Wissowa, *Reallexicon*, iii, A, 61: xi, 266).¹ By the Arabs the carat (*qirāt*) was reckoned at 4 gr. (*FB.* xith ed., v, 301, s.v. "Carat"). For our purpose the difference between them is negligible.

Now in *OTC.* 128 I inferred that the KISAL weight was 3 grains, since it had to be inserted between the šE (grain) and the shekel (180 grains); the natural conclusion was that, just as the Assyrians had a sexagesimal system of enumeration in their scale of heavier weights, so should we find it in their lesser weights; the *biltu* (talent) was 60 *mana*, the *mana* was 60 shekels, and therefore on this assumption the shekel would be 60 KISAL (like the GIN-DU₁₃ "small shekel", Thureau-Dangin, *RA.* 1921, 137), which left us with 3 grains to the KISAL. The KISAL would then coincide with our carat weight (a point which I did not at the time notice).

But in early times this sign KISAL is used with the det. ^{is} "tree", and we can follow this up:

As far back as Gudea ^{is}KISAL is included in offerings (*ISA.* 177, *Cyl. B.*, iii, 18 ff.), with honey, *ḫimetu*-ghee, wine, grain (mixed) with milk, fig(s) . . . (^{is}MA-NÍG-GIN-NA), milk which . . . (GA-SAG-BA-DIM-MA), dates, and ^{is}DINGIR-GEŠTIN-DU₁₃-DU₁₃.² Since it is thus included, it cannot represent a tree, but must be some form of tree-produce (fruit or otherwise), and, following up our theory that the KISAL was the carat or carob-seed, it would be easy to see in ^{is}KISAL the sweet pulp produced from the *Ceratonia*, used thus, not unnaturally, in offerings.

Of the *Ceratonia*, *MPB.* ii, 898, says "Nur eine in den Mittelmeerländern (namentlich den östlichen) heimische und cultivirte Art; *C. siliqua* L." We need, therefore, have no hesitation in accepting the KISAL as the seed of the *Ceratonia*, and the origin of our carat weight.

(The ideogram is TAB (= *tuamu* or *aḫu* "twin" or "brother")

¹ *Siliqua* occurs in Virgil and Pliny, the latter calling the carob by this name. Is it conceivable that our word KISAL, by a not uncommon variation in words containing the letters *l*, *m*, *n*, *r*, is the origin of the word *siliqua*?

² I see that I have slipped in reproducing this word in *Iraq*, 1938, 27. It should be TUR-TUR (i.e. DU₁₃-DU₁₃), of course.

enclosed in a "house", i.e. the seeds in the pod. This is entirely distinct from SILA (= *kasî*) ŠAR "rose", this sign being made up of PA (tops) enclosed in a "house".

(3) SILA-ŠAR, *kasî* ŠAR, the rose.

Obviously distinct from the two preceding. The reading *kasî* is certain from the pun in *Maqlû*, v, 34, *kima kasî* ŠAR *lîksuši kišpu-ša* "like the *kasî*-plant may her sorcery cover her". The evidence from *MT.* is very strong in favour of this being the rose: in prescriptions it is of very frequent occurrence, esp. in the phrase "water of *kasî* ŠAR" as a medium or vehicle for drugs (although it should be noted that it is not strikingly used, as in other pharmacopœias, to counteract the taste of unpleasant drugs): the not uncommon preparation of this plant in *MT.* with heat (not usual in other plants in *MT.*): the special phial for it (*ummar*, parallel to one for "blood"—why?)¹: and above all, the very small quantities prescribed, on one occasion as little as one carat (3 grains), showing how precious it was. It is noteworthy that the adjectives applied to it are frequently in the plural.

The following are the details of the above evidence. *Kasî* ŠAR occurs in *MT.* thus:

(1) *Simply (passim*, these being approximately half the total of its occurrences): *ext.*: Head seized with *ašû* RI-RI, bray fir-turpentine, *kasî* ŠAR, and salt, and rub them on head in water, *AM.* 1, 3, 8 (*dup. KAR.* 202, 35) similar to the receipt given by Pliny for dandruff, etc. (*NH.* xxiv, 120); head [rub] with opium, and *kasî* ŠAR BIL-ti in cedar-oil, *AM.* 4, 2, 5: †, [*CT.* xxiii, 38, 34], *dup. TCPP.* 39. Hand of Ghost, bind head with poultice, including *kasî* ŠAR, fir- and pine-turpentine, *AM.* 93, 1, 15. Eyes, "reduce" *kasî* ŠAR alone, steep in cow's [milk], or human milk, and bind on, *AM.* 8, 1, 22; alone, bind on, *AM.* 11, 1, 23: bray antimony, apply, wash in water, [apply] *kasî* ŠAR, *AM.* 8, 6, 3: with alum and nitre (^{šam}PAR) bray in *himetu*-ghee [and apply], *AM.* 15, 6, 8: in milk (alone?) apply, *ib.* 11: †, including cantharides (prob. to produce blistering) apply (*AM.* 16, 1, 8: †, boiled, applied in oil and white wax, *AM.* 19, 6, 7: †, roasted, applied in fat, wax, and *himetu*-ghee, *ib.* 10 (*cf.* 15). Nose, †, *AM.* 25, 6, 7, *PRSM.* 1924, 63. Ears, for water, blood [or pus?] in the ear, bray *kasî* ŠAR *qalute* (roasted) alone, mixed with . . ., insert [in wool], *AM.* 38, 4, ii, 12 + 34, 4, 4 (*JRAS.* 1931, 13). Foot, or knee, knead *kasî* ŠAR with fenugreek and *Lepidium* in water of *kasî* ŠAR, bind on, *AM.* 74, 33. Chest, †, bind on, *AM.* 49, 1, iii, 8. Bruises (*dikšu*) grind with mustard and *Lathyrus*, add *Lepidium*, steep in wine, and [apply], *AM.* 96, 1, 12. Blains (*šiggâti*), †, poultice, *AM.* 93, 2, 3. A blow (*mišittu*) on the mouth, †, boiled in strong beer, poultice, *AM.* 79, 1, 7: (*mišitti*), *AM.* 76, 5, 7: for *umšati* (sores of some kind), †, *AM.* 17, 5, 9. Blister (*sagbanu*) (BIL^{vi}) *si-ku-(u)-ti*, boil in beer with parched *Lepidium*, bind on, *AM.* 75, 31, *dup.* (practically) of *KAR.* 192, r. iii, 19. Urinary, "reduce alone, . . . apply to front of penis," *AM.* 62, 1, ii, 9.

Enemata: †, *AM.* 94, 2, 9, *cf.* 56, 1, r. 7. Prob. enema with salt (*etc.*(?)), stomachic, *AM.* 43, 6, 4.

¹ Possibly an abbreviation for "blood of cedar".

Suppository: †, (^{šam}ka-si-i spelt out), in fat of kidney of male sheep, *AM.* 57, 5, r. 7.

Pessary: childbirth, †, boiled in oil, poured into uterus, and inserted on pessary, *KAR.* 194, 14. *Female ailment*, †, mix in water, insert in uterus, *ib.* 27.

Int.: [Cough], dry green **Arnoglosson*, . . . *kašī šAR hašluti* (pounded, v. *qalāti* "parched"), drink, *AM.* 80, 1, i, 2: [cough], eat *kašī šAR pa'zutum*, †, in oil and honey, *AM.* 80, 1, 5. [Chest], spitting blood, †, drink in *kurunnu*-beer, etc., *AM.* 83, 1, r. 20. Stomach, †, prob. drink, *AM.* 39, 1, 31. *Sorcery*, †, drink in wine or beer, *AM.* 89, 1, 5.

Fumigate: *Ears*, †, *AM.* 33, 1, 31, a dup. of 35, 1, 7, and 38, 2, r. 10. *MAŠ-TAB-BA*, †, *AM.* 64, 1, 28.

Quantities: 1 carat, *AM.* 91, 6, 4: 5 carats, drink, *AM.* 24, 4, 2: 10 carats, *CT.* xxiii, 42, 9: 1 shekel, *AM.* 41, 1, iv, 17: 49, 4, 20: 81, 1, ii, 14: 5 shekels, *AM.* 64, 1, 8: 10 shekels, *KAR.* 190, 5, dup. *CT.* xxiii, 45, 9.

(2) *ZID* (powder): *ext.*: *Head*, †, 10 shekels, bind on [*CT.* xxiii, 32, 10], dup. *TCP.* 21 (note in *CT.* xxiii, 42, 9, that, of the six drugs bound on head, four are defined by *ZID*, but the 10 carats of *kašī šAR* and 10 carats of sesame-mucilage are not). *Temples*, pound, sift with Euphrates gypsum, †, steep in water of *kašī šAR*, bind on, *CT.* xxiii, 44, 3. *Eyes*, 6 carats, †, bind on, *AM.* 8, 1, 14. *Childbirth*, †, bind on, *KAR.* 195, 12. For [swelling or sim.], †, *ZID kašī šAR BIL*¹ (see p. 196), *KAR.* 192, r. iii, 15, and *ZID kašī šAR*, *ib.* 23.

(3) *Seed*: *ext.*: For *ašû* (appetite), †, anoint, in oil, *AM.* 64, 1, 22 (dup. 55, 8, 1, and sim. to *KAR.* 202, 37; *RA.* 1929, 70).

Int.: *Strangury*, doubtless drink, †, *AM.* 59, 1, 13, dup. 89, 4, 7.

(4) *ŠE-RÚ* (shoots): *ext.*: *Chest* and *loins*, poultice, †, *AM.* 51, 5, r. 4.

(5) "Water of *kašī šAR*": as a medium for mixing drugs: *ext.*: *Head*, *AM.* 1, 2, 12: *AM.* 3, 5, 9: *KAR.* 202, 1, 54: *CT.* xxiii, 23, 4, dup. *TCP.* 4, and *KAR.* 202, 1, 5¹: *CT.* xxiii, 23, 5, dup. *TCP.* 6 and *KAR.* 202, 1, 9: *CT.* xxiii, 23, 9, et passim (very common, *AJSL.* 1937, 218 ff.). *Temples*, *AM.* 20, 1, 19, 20, 37: *Eyes*, reduce powder of date-stones, bray, knead in water of *kašī šAR* [apply], *AM.* 8, 1, 12 (cf. 14). *Stomach* (alone), i.e. *mê kašī šAR sikruti BIL-ti* pour on his head, *Kü.* i, i, 12.

Int.: *Strangury*, with "water of dates", drink in milk, *AM.* 59, 1, 21: mix 10 carats with 10 shekels of *BÁR-GA*-oil and beer, let 15 shekels of seed of **Arnoglosson* soak therein for the night, and drink next morning, *ib.* 27. *Stomach*, $\frac{1}{3}$ qa water of dates, $\frac{1}{3}$ qa water of *kašī šAR*, $\frac{1}{3}$ qa of . . . , *AM.* 39, 1, 9. *Anus-trouble*, apply squeezed grape-juice in water of *kašī šAR*, after drinking *Solanum* in beer and nitre in beer, and bathing in water of *Vitex*, *AM.* 58, 2, 6.

Not as medium, and alone: *ext.*: To wash eyes clean after treatment, *AM.* 5, 5, 9: 16, 3, 3: (prob. simply, 22, 2, r. 8). To . . . head, after treating (*tesir*) head with cow's urine and washing it in beer, *AM.* 5, 5, 8. *Nostrils*, after cleansing mouth (paralleled by "water of *Vitex*" for the nostrils two lines further on), *AM.* 24, 5, 3.

Quantity: 5 qa, *AM.* 49, 4, r. 5.

¹ Note also plural *kašī šAR* for the more usual singular, as also in *KAR.* 192, 1, 16 and 46.

(6) The adjectives applied are of two kinds : (a) to *kasî šAR*, (b) to *mê kasî šAR*, the water.

(a) Applied to *kasî šAR* (and *šamsahlê*), the adjective being always in the plural : *qahute*, *qahuti*, *AM.* 28, 8, 8 : 38, 4, ii, 12 : 44, 1, ii, 6 : 98, 2, 8 : *KAR.* 197, 11 : *qalati* (v. *ḥašlâti*), *AM.* 80, 1, 2 : *ḥašluti*, *AM.* 11, 1, 2, 3 (Sum. KU-MAL : *pa'zutim*, *AM.* 80, 1, 5 (cf. 11, 2, 24) : *kabruti*, *Kü.* iii, i, 15.

(b) Applied (as far as I know) only to the "Water of *kasî šAR*" : *sikruti*, *AM.* 11, 2, 41 : *sikruti* [b] *aḥrute*, *AM.* 80, 1, 10 : *sikruti* BIL-ti, *Kü.* i, i, 12 : BIL^{pl}-ti, *AM.* 62, 1, ii, 10 : BIL^{pl}, applied to ZID *kasî šAR*, *KAR.* 192, r. 2, 15 :

(c) There appears to be only one possibility of coincidence in (a) and (b) where the word *sikuti*, *KAR.* 192, r. 2, 19, applied to *kasî šAR*, reappears in BIL^{pl} *sikuti*, *AM.* 75, 31, applied to . . . šAR, practically a duplicate. Although *sikuti* may be regarded as an adjective to *kasî šAR*, the BIL in the second example suggests that it may be read [*mê kasî*] šAR ; otherwise we must accept that BIL can be applied to both *kasî šAR* and its water (by comparison with (b) above).

With these examples from *MT.* we can compare the use of the rose, and rose-water in other pharmacopœias.

Pliny, *NH.* xxi, 73, says that the rose is astringent, and the petals, flowers, and heads are used in medicine, the diseases for which these are prescribed being of the head, ears, mouth, gums, tonsils, stomach, rectum, and uterus ; the flower, taken in oxycrate, arrests fluxes in females and blood spitting ; the seed as a liniment for toothache, as a diuretic, and, inhaled, to clear the brain. *Diosc.* i, cxxv, says that roses are cooling and astringent, and that the liquor of roses cooked in wine is good for headache, eyes, ears, gums, the anus, and the womb, and the flower found in the middle of roses is used dry for fluxion of the gums. In Syriac Medicine (*SM.* ii) we find roses used *ext.* for eyes (88), mouth (179), foul breath (668), liver (as plaster) (370), sores (693), and *int.* for chest (276), stomach (332) : they are described in their use as "fresh" (*ragyâ*), "dried" (*yabbšâ*), as "oil of roses" or "rose-water", or as flowers (*habbâbhê dh^e wardâ* (see *SM.*, index)). In India (*BMM.* 286) rosebuds are regarded as astringent, and as a cardiac and cephalic tonic, and the petals relieve uterine hæmorrhage, and are used locally for aphthæ.

The oil or attar is used to disguise the unpleasant odour of certain ointments (*IMP.* 526). This in general will be seen to coincide well with *MT.*

But in addition we can learn much from the adjective use applied to *kasî šAR* (above). *Qahuti*, lit. "parched", "fried" (as is proved by *AM.* 36, 1, 7, and 38, 4, ii, 3, where "thou shalt parch" (*taqallu*) like ŠE-SA-A (parched corn) is said of *kasî šAR*. Note Pliny, *NH.* xxi, 73, "the petals, charred, are used as a cosmetic for the eyebrows ; and the thighs, when chafed, are rubbed with them dried ; reduced to powder, too, they are soothing for defluxions of the eyes." He also (*ib.*) gives three methods of drying the petals, one of which is that the "unglets" (the white part of the petals) are removed from the petals, and pounded. Here, in this passage from Pliny, we are given not only the method of parching, but are told of the "powder" (see p. 195), and of the "pounding" which will coincide with the Assyrian *pa'zutim* and *ḥašlâti*.¹

¹ *Kabruti* is uncertain.

On the other hand, in the case of "water of roses", we find it employed thus: *sikruti* "heated", *s. bahrute* "steaming hot", and *s. BIL-ti* "heated warm" (or should it be "fresh"?).

Sikuti, if it does apply in both (a) and (b) can hardly mean "powdered" as its root suggests, and hence it may be that we are wrong in thinking that it applies to (b). Whether *BIL* means "hot", "dry", or "fresh" is uncertain.

In *MT.*, as in other pharmacopœias, we have to distinguish between the simple rose and the attar or rose-water. Actually this appears to have been clearly noted by the Assyrian doctors, who are precise in their use of "water of rose". *PC.* xx, 1841, 1859, gives the details for the various uses of the rose in medicine: the petals of *Rosa gallica* and *R. damascena* are supplied for medical purposes, the buds being collected before they expand; the calyx and lower part of the petals are dried, about 2,000 flowers yielding 10 lb. of dry petals. The chief employment of the conserve of *R. gallica* is as a vehicle for other medicines. It is the *Rosa centifolia* which is used for the rose-water, the petals of which being plucked when the rose is full grown are dried in the open air and not in an oven (desiccation impairs their fragrance, while heightening that of *R. gallica*). A syrup is made of them, but their chief use is by distillation for rose-water, 100 lb. of rose-leaves yielding less than three drachms of attar.¹

An acid infusion of roses is made with red rose petals and dilute sulphuric acid and boiling water, a vehicle for saline purgatives, quinine, etc. The confection of roses is made from fresh red rose petals, which are beaten, and then refined sugar added and the whole rubbed together (used as a vehicle in the preparation of pills). A confection of the hips of *R. canina* L. is made by depriving them of their seeds, beating to a pulp, adding sugar and rubbing the whole together (*WPI.* 82). For the Arabic conserve with sugar or honey, see *FJ.* iii, 209.

R. centifolia L. is a native of the Caucasus and Assyria (*IMP.* 526), and the white rose flourished at Nisibin (*FJ.* iii, 194). Rich (*Koord.* i, 235) mentions giant wild rose bushes in Kurdistan.

Philologically, if we accept *kasî šar* as the Assyrian word for the rose, we may see in it a connection with the word *kasû* "to cover" from the numerous petals which enclose the "seed", just as the *Rosa centifolia* is so called from the number of its petals.

To sum up these three different plants:

(1) *šamKisat šîri*, *šamkasi šîri* "snake rind, covering" the equivalent of *šamqulqullânu*, the Arab. *qulqul*, is the *Cassia tora*.

(2) *Kasia*, occurring spelt out so often in late Babylonian times, and used as an offering as far back as the time of Gudea (written then with the ideogram *KISAL* which represents the pod with its seeds and

¹ For a description of the preparation of rose-water, see Jackson, *JRAS.* 1839. For the use of the terms in Arab medicine see H. Kroner, *Zur Terminol. d. Arab. Med.*, 1921, 47 ff. *FHP.*² 262 says that the ancients did not make attar of roses, the "rose-oil" of Diosc. being a fatty oil in which roses had been steeped. But this is hard to reconcile with the persistent mention of "water of roses" in *MT.* (if my identification is correct). Nisibin was famous for its rose-water in the fourteenth century (*ib.* 233), and there is no reason to suppose that attar was a discovery only of the second millennium A.D.

gives us our carat-weight) are the edible husks of the *Ceratonia* (or the treacle expressed therefrom).

(3) *Kasî šAR* is used constantly in Assyrian medicine for the rose, in similar prescriptions to those of Pliny and Dioscorides, and defined by the adjectives "parched", "pounded".

Here, for want of a better place, we can insert a group from *Pl.* 30, 79-7-8, 19, 11, 11-24, which follows a group for *šamqulqulanu* (*Cassia tora*, p. 188), and *šamgiranu* (p. 351):

11.	<i>šame-riš-ti kasî šAR</i>	<i>šamla-di-[ru]</i>
	<i>šamkal mar-šu</i>	<i>šamšu-šu-</i>
	<i>šammur-ra</i>	<i>šamkaran</i>
	<i>šamzir riāmurri</i>	<i>šamzir karan</i>
15.	<i>šamNE — A</i>	<i>šampi — [lu (?)]</i>
	<i>[šam] . . . KA-RU-RU</i>	<i>šamni-ka-ru-r[u]</i>
	<i>. ŠAB</i>	<i>šamšab-bi-lu: ku-ta-rum (?)</i>
	<i>. -gu</i>	<i>šampa-ti-lu-tu[m]</i>
	<i>. -tu</i>	<i>šamšu- . . . (?)</i>
20.	<i>.</i>	<i>šamka-di-še-ru</i>
	<i>.</i>	<i>šampu — tū</i>
	<i>.</i>	<i>šamsa-me-nu</i>
	<i>.</i>	<i>šamur-ši-tum</i>
	<i>.</i>	<i>. -tum</i>
	<i>.</i>	<i>.</i>

(1) *šamErišti kasî šAR* "scent of the rose", given here and *Pl.* 21, K. 267, vi-v, 4, as equivalent to *ladiru*, which, in the last-mentioned text (in l. 5) is the fenugreek (p. 64). *Erišti kasî šAR* (possibly with the det. ⁴³) occurs in *MT.* (*AM.* 1, 3, 11) in a head prescription; Pliny (*NH.* xxiv, 120) recommends fenugreek with wine and nitre for ringworm and dandruff, and it may therefore be that "*erišti kasî šAR* is only another word for "fenugreek", there being some fanciful connection by smell which Post, *FP.*² i, 317, says is pleasant, but *VK.* 534 disagreeable. Cf. *lipû erišti ša rubuṣ kit-t[um]*, which, literally translated, is "fat of the scent of the excrement of kittum (*AM.* 24, 1, 6), for some form of facial paralysis).¹ If *kittum* = the Syr. *qaṭṭā* "cat" we might see "civet"

¹ The detailed way in which this Assyrian drug is described indicates something unusual: *erištu* "smell" and *rubuṣu* "dung" are insistent on a peculiar meaning. The prescription in which this *hapax legomenon* is used is apparently for hemiplegia with paralysis of the mouth, etc. "If a man's mouth hurts him, it being twisted to the right, so that he [can]not speak, his speech he cannot control (?), for six days thou (?) shalt make his diagnosis (?) (*MAŠ-MAŠ* = *ḥasāsu*); on the seventh day [prepare the prescription (?)] . . . doves' dung (= *Ceratonia siliqua*), wax, fat of ⁴⁴*kanaktu* which contains oil . . . thou shalt knead (?), fat of the scent of the excrement of a cat (?) . . . his eye (?) and his mouth [thou shalt anoint (?)] . . . the physician. . . ." Cf. the Syr. [unguent]. "which is good for every kind of pain, and for rigidity and for paralysis of the face", consisting of terebinth-gum, wax, ammoniacal incense, oil of the fat-tailed sheep, boiled honey and old oil, to be smeared on (*SM.* ii, 157). Lemery (*HD.* 242) says that civet comforts the spirits, and is good against all diseases of the head, brain, and womb; put up in a pessary or piece of sponge it prevails against hysterical fits and vapours, and put into the ears with a little cotton it helps the difficulty of hearing; and it is an anodyne and good for colic in children, if applied to the navel. According to *IB.* 1091 it dries abscesses externally and eases pain. *EB.* xith ed., s.v. "Civet-cat", says that the zibeth (*Viverra zibetha*) is a widely distributed species extending from Arabia to Malabar, and that civet is a fatty substance poured from the glands in the Civet-cat, a deep pouch in the neighbourhood of the genital organs.

here. (Can *ladi[ru]*, by any chance, be read *lati[ru]* as an incorrectly heard Arabic word *al-'itr* "attar of roses"?)

(2) *šamLadiru*: see *šamšambaliltu*, p. 64.

(3) *šamKal marḥu*; in medicine (*AM.* 5, 8, 7) as *ZID.ZID* (powder) *škal mar-ḥi*, †, for *kurara* (itch or similar) in head. Cf. Arab. *maraha* "anoint".

(4) *šamMurra* = *šamkaran*... This must be the reading, since *šamzir riqšiš* (= *murru*) is in the next line. The connection of "myrrh" with some form of "vine" seems impossible; and I can only suggest that we have here some reference to the addition of myrrh to wine. Cf. Pliny, *NH.* xiv, 15, on the perfuming of wine with myrrh. We might possibly restore it *šamGEŠTIN.GIR* (= *amurdiṇnu*) since we have "scent of the rose" above, and *paṭilutum* "bramble" below.

(5) *šamNE-A*, I have suggested *šampi-[lu(?)]* as a restoration of the Semitic, on the grounds that *šGEŠTIN.NE (BIL)* = *pillum* (*D.* 210, 15).

(6) *šamPaṭilutum*: cf. Syr. *p^etal*, *rubus*, which fits in well with the possibilities of the others. (The remainder are uncertain.)

XI

THE “HOT” PLANTS

MUSTARD, PELLITORY, NETTLE, ROCKET, RADISH

A. ^{šam}HAR-HAR, *ḥaldappānu*, *Sinapis*, mustard.

Pl. 20, K. 4216, 4-15 :

	^{šam} ha-si-sa-a-nu	^{šam} ḥal-dap-pa-a-nu
5.	^{šam} ḥa-la-me-su	^{šam} ḥal-dap-pa-nu
	^{šam} ḥal-dap-pa-a-nu	^{šam} ku-[uš-ru(?)]
	^{šam} HAR-HAR	^{šam} ḥal-dap-pa-[a-nu]
	^{šam} TUR-RA	^{šam} ḥal-dap-pa-[a-nu]
	^{šam} ut-ti-mu(?)	^{šam} ḥal-lu-la-a
10.	E(?) - NE(?) - ŠA-E(?) - E(?) ¹	^{šam} ḥal-dap-pa-a-nu
	^{šam} ZID- RÚ ^{šam} ku-uš-ru	^{šam} ku — zu — ru
	^{šam} RU-UŠ-RU-UŠ	^{šam} ku — uš — ru
	^{šam} KI-IZ-BAT	^{šam} ku — uš — ru
	<i>šupur a-me-lu-ti</i>	^{šam} ku -zu -ru
15.	^{šam} a-a-ār sa-na-pu	^{šam} a-a-ār TU-KUL

Pl. 47, 42339, 6, gives ^šHAR-HAR = *šu* (i.e. *ḥarḥaru*). For an instance of ^šHAR-HAR see *AM.* 91, 4, 7.²

Smith, *CT.* xxxvii, 31, 108860, iii, 51 ff. :

	^{šam} me — si — sa — [a(?) -nu]	^{šam} ḥal-dap-[pa-nu]
	^{šam} ḥal — la — me — <i>šu</i> (sic)	^{šam} [„ „]
	^{šam} ḥal-dap-pa-[a (?)] — nu	^{šam} tu — <i>līd</i> (?) (<i>kiš</i> (?)) . . .
	^{šam} šá-mi LUḤ (?)	^{šam} ka-
55.	^{šam} šá-mi <i>itti</i> (?)	^{šam} ru-[uš-ru-šu]
	^{šam} ru-uš-ru-šu	^{šam} zu-
	^{šam} ditto <i>ut</i> (!)- <i>liš</i>	^{šam} šID-(GÁN (?))
	^{šam} šá-mi GÁN (?)	^{šam}
	^{šam} KI-DA ?	^{šam}
60.	^{šam} šá-mi ?	^{šam}
	^{šam} IM — BU	^{šam}

This was identified in *AH.* 62 with *Sinapis*, mustard. The group occurs thus in *MT.* :

(a) ^{šam}HAR-HAR :

(1) *Simply. ext.* : *Eyes*, †, boil and apply in oil and white wax, *AM.* 19, 6, 8. *Ears* singing, †, apply in cedar oil, *AM.* 33, 1, 24. *Temples*, bind on in LÚ-TIN-NA-beer, *CT.* xxiii, 41, 10, *dup. KAR.* 188, r. 17 : with mint in beer, bind, *CT.* xxiii, 42, 22. *Anus-trouble* (*hæmorrhoids* ?), †, uncertain use, *AM.* 58, 2, 9. For spitting a white phlegm, †, poultice *AM.* 50, 3, 3 (i.e. a mustard-plaster). *Lung-trouble*, †, poultice, *AM.* 49, 1, 2. *Swelling*, †, poultice, *AM.* 73, 1, 19 ; bind, *AM.* 96, 1, 12. *Foot-trouble*, †, bathe, *AM.* 69, 2, 8. *Lassitude*, †, bind on, *AM.* 52, 5, 15. "Heat of the day" (TAB-UD-DA), anoint with garlic in honey and oil,

¹ Re-examined : it might be KU-KAR-IS-ŠA-E(?) - ?.

² It is difficult to see why ^{šam}HAR-HAR should be given as equivalent to ^{šam}karan *šelibi*, *Pl.* 22, viii-vii, 52.

KAR. 203, i, 54. *Ghost*, †, anoint in cow-fat, *AM.* 88, 2, 10: †, anoint in oil, *KAR.* 56, r. 11.

Int.: *Strangury*, †, drink, *AM.* 59, 1, 35: 60, 1, 7. *Venereal*, †, eat, *AM.* 66, 7, 14. *Lung-trouble*, †, eat and drink, *AM.* 83, 1, r. 14 (*RA.* 1934, 13). *Sorcery*, †, drink, *AM.* 85, 1, 3: 87, 5, 13: 89, 1, 6. *Hand of Ghost*, †, (probably) drink, *AM.* 97, 6, 5: (with stomach or other trouble) drink, *AM.* 76, 1, 12, 16, 18, 20, 24, 27. Right ear singing, drink in beer alone, *AM.* 35, 1, 8: for ears singing drink in beer alone, *AM.* 37, 2, 7 (*JRAS.* 1931, 15). *Stomachic*, †, with blood coming into the mouth, drink, *AM.* 42, 5, 6. Some form of *jaundice*, alone, drink, *Kü.* iii, iii, 22. Noticeable as emetic: "When a man's inside 'eats' him (*i.e.* hurts), drink in beer with salt, or alone in beer or water" (*Kü.* i, ii, 1-2). For *šmit šāri* (flatulence), with garlic, to be drunk in honey, oil, and *kurunnu-beer*, *KAR.* 203, iv, 10. To stay *menses*, †, drink in beer, *KAR.* 194, iv, 25.

Enema: *Stomachic*, †, *AM.* 43, 6, 5: with ten others boiled in *kurunnu-beer*, applied locally, and also used as enema, *KAR.* 157, 3 (*cf. ib.* 21, 10 shekels). *Strangury*, *ib.* r. 15.

It is used in the following semi-magical ritual as a sialagogue thus: a man who wishes to prevent the approach of one who is his enemy must chew *veratrum* (hellebore), *šam*ḪAR-ḪAR (mustard), and a "nail" of *azupiru* (saffron) in a lump of salt without a meal on the 18th of Siwan, *KAR.* 178, 5, 50. Here we have three sialagogues, hellebore (which excites salivation, *LPG.* 191), mustard (*P.* 1079) and salt. As for the "nail" of saffron which must certainly mean the stigma which provides the saffron (Löw, *Ar. Pfl.* 215, *cf. ὀρύχινος* of the *Crocus*) "by mastication [of saffron] the mouth and saliva are rendered yellow" (*PC.* xx, 309). In other words on the 18th of Siwan, when the moon will certainly have just begun to wane, doubtless with a corresponding sympathy in the waning of the affairs of men, certain sialagogues are to be chewed resulting in the production of a yellow colour in the saliva. Now, since to spit is the usual expression of enmity in the East, and since yellow is the normal colour representative of jealousy, hostility is to be averted by this spitting of yellow saliva.

Saliva is again produced by *šam*ḪAR-ḪAR in *AM.* 31, 4, 17: "If a man's saliva is stopped, he is bewitched." It is also used in a mouth-wash, †, *AM.* 54, 1, r. 5: 78, 1, 15, and probably 19.

Quantities: 2 shekels *šam*ḪAR-ḪAR (as a gloss to 2 shekels of *riq*ŠE-LI), *AM.* 41, 1, iv, 15. 2 carats, *AM.* 12, 10, 3.

(b) The Semitic equivalent is used in *MT.* thus: *Eyes*, †, *šam*ḫal-pa-nu-um (*sic*), *KUB.* iv, 50, 6. *Blister*, alone, apply locally, *AM.* 75, 1, 30 (*šam*ḫal-dap-pa-na). In *poultice*, †, *AM.* 27, 6, 4 (*šam*ḫal-dap-pa-a-na). *Head*, with fruit of *š*BAR-ḪUŠ in rose-water bind, *CT.* xxiii, 31, 67 [*šam*ḫal]-dap-pa-nam).

The other uses of *šam*ḪAR-ḪAR in *MT.* are:

(2) *Water*: *enema for strangury* with 6 others, *KAR.* 157, r. 5.

(3) *šam*ŠE-NU(?) (= RÚ(?)) *šam*ḪAR-ḪAR, with *šam*ḪAR-ḪAR itself are described as *šam ašī*, appetizers (*Pl.* 29, K. 4566, 7 and 12) which, of course, mustard is (see (4) below).

(4) *ZID* (?): *cf. AM.* 49, 6, r. 2, where "7 *ZID šam*ḪAR-ḪAR", glossed *šam a-ši-i*, is mentioned in a prescription to be bound on the *kiširte*,

among a series of drugs each defined carefully by weight, chiefly in carats.

(5) *Root*: (^{šam}hal-dap-pa-ni) for teeth *unnušate* ("made weak") applied locally, *Pl.* 23, *K.* 259, 13, *dup. KAR.* 203, i, 12. The root of ^{šam}hal-dap-pa-ni is one of the drugs used for šà-GÍG, *i.e.* *irrû* (šà) *šalmu* "black intestine" (*Pl.* 48, *Rm.* 328, r. V, 7), and *ṭulimu*, which I take to be cognate with the Syr. *tammel*, *inquinavit* (unpub. text, *D.* 384, No. 182). The remaining drugs for this disease are (*l.c.*) ^{šam}TAR-ḪU (= ^{šam}TAR-MUŠ?), ^{šam}ŠI-ŠI (heliotrope) . . ., root of ^{šam} . . ., manna, tamarisk-gall, *Ricinus*, *Solanum*. *Calendula* may be used for bilious disorders, manna is at times a purgative, gall is a styptic, castor-oil is an aperient, *Solanum* is of varied use, mustard originally is a digestive. "Black intestine," with the synonym "defæcation", suggests *melæna* "black tar-like evacuations . . . due to altered blood", the blood having been partially digested (*DM.* ii, 938). (Obviously the causes of such an affection can hardly be treated in so cavalier a fashion as this brief Assyrian catalogue of drugs would suggest, nor is it possible here to deal with the various causes of the disease.)

We can compare the more modern uses of mustard with those in *MT*. The principal use is as a rubefacient, and for the alleviation of neuralgic and other pains; added to baths, as for the feet; as an emetic it is especially valuable, and it has been used as a diuretic in dropsy (*BMP.* i, 23). During hysterical fits in adults, and convulsions in children, it is applied *ext.*, and it is also a useful application to remove lice and scurf (*BMM.* 156). Toothache, faceache, and neuralgic pains in the head and face are frequently relieved by a mustard poultice (*BMI.* 118), and the latter work says that it is used in India for poultices to the feet, for insanity, dropsy, and cholera. These are supported by *Diosc.* ii, 183 (esp. mustard for ὑπόπια of the eyes) and by Culpeper, 221 (the root for toothache).

Black mustard is a powerful stimulant as a poultice, and the essential oil is occasionally prescribed as a liniment (*FHP.* 64). The seeds of white mustard, when swallowed whole, act as a laxative, and have been used as a remedy for dyspepsia (*BMP.* i, 23).

It will be seen that *MT.* follows these uses closely.

One of the most striking pieces of evidence in the identification of ^{šam}HAR-HAR as "mustard" is that it is one of the four drugs for staining the hands (yellow), in accordance with Eastern custom (*cf.* Olivier, *Travels*, i, 123). The other three are *Asa foetida* (*p.* 352), tumeric (*p.* 160), and saffron (*p.* 160) (*Pl.* 48, *Rm.* 328, vi, 3). This staining of the hands is indicated in our group (*p.* 203, l. 14) "nail(s) of mankind" = ^{šam}kuzuru, *i.e.* for the nails particularly "The soles, and sometimes other parts of the feet as high as the ankles, the palms of the hands, and the nails, are dyed of a yellowish red with the leaves of a plant called henna" (*Scripture Manners and Customs* (S.P.C.K.), 231).

It is worth while adding the description of the Assyrian mustard poultice here. This would seem to have been made, according to *Maqlû* v, 4, with ^{šam}HAR-HAR and sesame (in our *Pharmacopœia* the sesame is replaced by linseed-meal): *ašapparakkima* ^{šam}HAR-HAR u *šamaššammi* "I will send thee mustard and sesame". Similarly, *ib.* 52, 53, our

linimentum sinapis is suggested (made according to *P.* 1082 with oil of mustard, camphor, castor-oil, and alcohol): *anaku anaššakimma riakukru ištu šadî* . . . ^{šam}HAR-HAR *ti'-ut mâtî*¹ "it is I who raise against thee the turpentine of the fir from the mountain . . . mustard, the food (?) of the land".

^{šam}HAR-HAR is used powdered (*ḫašâti*, *AM.* 43, 1, ii, 2), and the very word ^{šam}HAR-HAR suggests its Akkadian meaning *tênu* "to grind". Curiously similar is the Arabic *hara* = *Sinapis harra*, Forskål, *Flora Aeg.-Arab.* 119.

The synonyms for ^{šam}HAR-HAR, *ḫaldappānu*, are:

(1) ^{šam}*Ḫa-si-sa-a-nu*, if connected with *ḫasāsu* "to feel", "perceive", suggests "that which makes itself perceptible". Meissner (*MAOG.* xi, 1/2, 1937, 38) would eliminate *ḫasisānu*, replacing it by *mesisānu* from 108860, but the pun in *Maqlû*, v, 25, is definitely against this: "May her sorcery grind her small (*liḫaššusi*) like ^{šam}HAR-HAR-ŠAR" (*ḫašāšu* here being referable to a possible cognate of the Arab. "make small", with which cf. ^{šam}TUR-RA, No. (4) below.

(2) ^{šam}*Ḫa(l)-la-me-su* perhaps the same as ^{šam}*ḫu-la-me-su*, *Pl.* 32, K. 4180, B, 3 and 10 (forming the end of Col. i of K. 267, *Pl.* 21, with four or five lines lost between them), and *Pl.* 43, K. 4419, ii, 11, but hardly the same as the tree ^{šam}*Ḫi-ki-in-dir* (?) = *ḫu-la-me-su*, *D.* 315, 81. It suggests, by its form, the Heb. *ḫallāmūth* "purslain", but the meaning "mustard" is not probable in *Job.* vi, 6.

(3) ^{šam}*Ḫa-lu-la-ia*: for teeth, apply locally, *Pl.* 23, K. 259, 5, *dup.* *KAR.* 203, i, 5. *Ḫa-lu-la-a* (no det.), alone, dry, bray, drink for stone, Lutz, *AJSL.* 1919, 82, iii, 74 (cf. the use of mustard as a diuretic, *p.* 205). ^{šam}*Ḫa(l)lulā*, *ḫallulā* has two other meanings: (1) a demon which lies in wait for wayfarers (Landsberger, *Fauna*, 135), probably connected with the Syr. *ḫullāyā* (root *ḫll*), a dweller in caves; and (2) an insect to which the name of "earth-pig" is given, which suggested "Maulwurfsgrille" to Landsberger (*ib.*, probably correctly). The two words, however, need not be connected philologically, although *VR.* 21, 28-29c-d, certainly would suggest that the Assyrians thought that the demon was connected with mustard, this text giving

MAŠKIM-GÍG-LÚ-ḪAR-RA-AN	|	<i>ḫal-lu-la-a-a</i>
MAŠKIM- GÍG- A-RI-A ² ("rabišu-	|	<i>šaman</i> ,, (= <i>ḫallula</i>) ("oil of
demon + semen")	|	mustard")

(4) ^{šam}TUR-RA "the small" would almost suggest *Matt.* xiii, 31.

(5) ^{šam}*Uttimu* (?) (*partimu* (?), *tamtimu* (?)), difficult.

(6) ^{šam}RU-UŠ-RU-UŠ must be the ^{šam}*ru-uš-ru-šu* of *p.* 203, l. 55, equivalent to "drug of marking (?)". It may be connected with the "(*rušu*), pl. *rūšān*, Spitze (? *Fingernägel supra*)" of *BAG.* 251, which would then again suggest its use for staining the finger-nails. [^{šam}*R*]u-uš-ru-uš-šu is to be drunk in *kurunnu*-beer and used as an ointment for a bruise alone, *Pl.* 23, K. 9283, 13. The equivalence with ^{šam}ŠRT-[GÁN] (chamomile) "in common speech" is interesting.

(6) ^{šam}KI-IZ-BAT, difficult.

¹ Meier, *te-nat šadî*, Stolz (?).

² Deimel appears to have omitted this *a* (*D.* 295d, 8).

(7) ^{šam}A-a-ár sa-na-pu = ^{šam}a-a-ár TU-KUL; the word *sanapu* (so Stücken, *Astralmythen*, i, 5) is very near in sound to σίναπι, σίνηπι. Benfey (quoted by Hehn, *Kulturpfl.*, 207) conjectures that the word σίναπις was originally Sanskrit, but was altered by the Persians and Greeks. The cognate Arab. *sinf* "a pod" or "husk" would seem to be the explanation here; the genus *sinapis* is known by its siliquose fruit (*PC.* xxii, 35), which shows how alert the Assyrians were to notice salient points in these plants: "In preparing the flour of mustard in this country, the black husk of the seed is separated by delicate sifting" (*ib.* 36), which perhaps indicates the ^{šam}a-a-ár sa-na-pu "sheen of husk". ^{šam}a-a-ár TU-KUL, perhaps as "dwelling for seed" represents the pod, *sanapu*. Theophrastus mentions a form *νάπυ*, and Diosc. *νάπυ* or *σίνηπι*.

(8) *Sappandu*, cited by Holma (*Kl. B.* 79) (= ^{is} ^{ria}Εῢ-ḤA-BA, from Meissner, *MVAG.* 1913, 3, 18, 44) as perhaps cognate to the Pers.-Arab. *sipandu*, σίναπις. But the det. ^{ria} makes this very improbable.

To conclude this group, it may be mentioned that the old translation for *haldappānu*, ῥοδοδάφνη, is unsound: all parts of the plant *Nerium odorum* (hardly different from *N. Oleander*, especially the root) are recognized by the natives of India as poisonous (*CPI.* 139).

Curiously enough, the Assyrian words for "mustard" show little affinity with those of the other Semitic languages. It is possible, if we allow a juggling with letters, to see in *haldappānu* an equivalent for the Arab. *ḥardal* (a Syr. form *ḥardh'ūnā* exists), that is, on the grounds that (a), *l* and *r* not only interchange, but may also change places in a word: and (b), *r* in Assyrian once takes the place of *b* before *d* (in *ardu* "slave", the Heb. 'ēbhēdh). Hence *khardal* might be for *ḥabdal*, and so *ḥaldab(p)-anu.*, but it seems a hazardous series of changes. Indeed, *FJ.*² i, 517, suggests that the Arabic may be a loanword (comparing Lagarde, *Sem.* i, 64). At the same time there is the form *h n d r* in the Ras Shamra texts, for which both *ḥardal* "mustard" and even *ḥanṣal* "colocynth" have been suggested (Virolleaud, *Glecs.* i, 1938, 24).

Ainsworth (*A.*, 36) mentions *Sinapis orientalis* in Mesopotamia; six species of mustard occur in Syria-Palestine (*FP.*² i, 123).

B. ^{šam}DINGIR-BABBAR, ^{aš}Šamas, *Anacyclus Pyrethrum* D.C., Pellitory.

This plant, as yet, has not been found in the syllabaries. It is written ^{is}Ša-maš, which may be a mistake for ^{šam} ^{aš}Ša-maš (Gwynn, *PSBA.* 1914, 243, 32). As "Flower of the Sun" it would be suggestive of our sunflower (*cf.* the representations of the disks of the Sun-god and of the Venus-star, *i.e.* ^{šam}DIL-BAT, *mesembryanthemum* (?), *p.* 46, on the royal necklets. I might add that *Šamsi* was the name given me in Arabic at Basrah for the Sunflower (*Helianthus*).

It occurs thus in *MT.*:

(1) *Simply*: *ext.*: *Swelling*, †, poultice, *AM.* 15, 3, 13 + 73, 1, 3 (*JRAS.* 1937, 283 *ff.*): *ib.* 15, 3, 17 + 73, 1, 7 (*JRAS.*, *ib.*): *ib.* 73, 1, 24 (*dup.* *KAR.* 192, 19). *Scorpion-sting*, mix † in cedar-oil, anoint in oil, *AM.* 91, 1, *r.* 9. Probably to be restored in the recipe for *snake-bite*, alone, *Pl.* 23, K. 9283, 6. An interesting text prescribes it semi-magically for *feet* (*AM.* 74, 1, ii, 25: *JRAS.* 1937, 419): "If a man's feet are full of sickness, their sickness having a recurrent period; the day when they

are full of sickness *Anacyclus Pyrethrum*, of which the "eyes" (flowers) are turned to the west, thou shalt root up in the sun, saying thus: "O Shamash, the plant is thy plant (?) . . . This plant below (?) thou shalt tie; thus shalt thou say 'Free, O Shamash, loose, O Shamash?' Seven times [thou shalt say it]: then thou shalt take dust of the City-gate, go to the river, go down into the river, and set his face downstream (?) . . . thou shalt tie his feet downstream (?): thus shalt thou say: 'Thou hast bound, do thou loose, O Shamash!' Seven times shalt thou say (it) . . . his face upstream (?) thou shalt set, the dust aforementioned on his feet upstream(wards) (?) he shall rub, thus shalt thou say: 'Thou hast bound, do thou loose, O Shamash!' Seven times shalt thou say (it), and he shall recover."

In this text the use of "eyes" is paralleled by our "daisy" ("day's eye"), and "ox-eye" (the Syr. 'ēn tōrā, *Chrysanthemum coronarium*), and the *Solis oculus* of the *Parthenium* (*Diosc.* iii, 145). The mixture of the drug with "dust of the City-gate" seems to suggest that the latter, connected as it is with traffic and road-movement, is intended by its sympathetic magic to restore the power of motion to the affected legs, especially in similar relation to the running river. Whether the "Sun-plant" here is to be rubbed on as a rubefacient (which is possible), or whether it is merely an emblem of the warm sun, can hardly be decided.

5 shekels of ^{šam}DINGIR-BABBAR with 24 others amounting in all to 250 shekels of drugs (more than 4 lb.) without allowing for the "rose-water" and "strong vinegar" in which they are to be dissolved, is to be administered as an enema in honey and pure oil (*šamna ḫalša*), *KAR.* 157, 28.

(2) PA (tops): as *poultice*, †, when leg-muscles are strained and walking is impossible, *AM.* 68, 1, r. 13.

(3) Root (^{šam}šur-ši ^{šam}DINGIR-BABBAR): applied alone in toothache: *Pl.* 23, K. 259, 6, *dup.* *KAR.* 203, i, 6.

Note the comparison in *BRP.* iv, 37, 7 (*JRAS.* 1924, 453) "^{šam}*Imḫur-ašra kima šaruru* ^{šam}*Is'ar šaniš* ^{šam}*imḫur-ašra kima* ^{šam} ^{šam}*Šamaš zir-šu kima šigušti*, i.e. the *imḫur-ašra*-p'ant (Corn marigold, or similar) like the "brilliance of Ishtar, otherwise like the ^{šam} ^{šam}*Šamaš*, its seed like *šigušti*", which is another indication of the daisy-like appearance of the ^{šam} ^{šam}*Šamaš*.

We have thus a daisy-like flower, named "Sun-plant", and compared by the Assyrians to the Corn-marigold, with a hot, pungent root used for toothache, and used (in general) *ext.* only for swellings, and small enough to grow on houses and walls (Gwynn, *l.c.*). The obvious equivalence (*AH.* 71) would be that species of the *Compositæ*, the *Anacyclus Pyrethrum* DC. which is called "Spanish Chamomile", with its root universally used as a remedy for toothache, and the tincture occasionally as rubefacient and stimulant (*FH.*, 2nd ed., 342 and 384: *WPI.* 125: *BMM.* 355). It is found in Arabia, N. Africa, and Spain (*MPB.* ii, 1140: *FP.*² ii, 57, gives *Anac. radiatus* Loisel., and *Anac. nigellifolius* Boiss.).

Particularly noticeable is the mention of the growth of the Assyrian plant on the wall, but whether we are to see here a similar confusion to that in English with the "Pellitory of the Wall" is, of course, doubtful; this latter plant is derived from *Parietaria* and not *Pyrethrum*.

(šam)GI-ZÚ-LUM-MA, *quršibti eqli*, *Urtica dioica* L., nettle.

Pl. 24, 24, K. 4412, iii-iv, 15-23 : Pl. 38, K. 5424, B, iii, 1-5 (Pl. 37, K. 4417, 12-20, reversing the order of the two groups) :

15. šam _{GI-ZÚ-LUM-MA}	šame-pi-ta-a-tu
šam _{LAM — MA}	šame-pi-ta-a-tu
šam _{KIN — DU₁₃}	šame-pi-ta-a-tu
šame — li — ku — nu	šam „ ina Šú-ba-r[i]
šam _{qi} — li — tú	šam „ ina Šú-ba-r[i]
šam _{qul} — li — tú	šam „ ina Šú-ba-r[i]
GI -ZÚ-LUM-MA	šam _{qur-šib-ta} ¹ eqli
zir GI-ZÚ-LUM-MA	šam _{qur-šib-ta} ¹ eqli
GI — ZÚ — LUM — MA	šam _{qur-šib-ta} ²

Sp. iii, 6 (Pinches, *PSBA.* 1894, 309, 4) gives :

„ GI-ZÚ-LUM-MA = ku — ú — ri

VAT. 9000 :

(a) šam _{GI-ZÚ-LUM-MA}	šam _{qanêpi} ha-a-šu-ti ³
(b) šam „ „	šam _{bit} — zu
(c) šam _{LAM- ME ŠE}	šam
(d) šam _{KIN — DU₁₃}	šam
(e) šam _{ta- 4-li-tu}	šam
(f) šam _{zir- GI-ZÚ-LUM-MA} ⁵	šam

Meissner, *MVAG.* 1913, 2, 26, 27 ff.

¹GI-ZÚ-LUM-MA =, ²šam_{lammu} : ³BU-ZÚ-LUM-MA = bušinnu

It is noticeable that this plant is included in two distinct registers, and it may well be, that while one contains the legitimate plant šam_{quršibti eqli}, the other gives merely a *quid pro quo* translation šam_{epitātu}, qanê hâšuti or hašuşute). šam_{GI-ZÚ-LUM-MA} means literally “cane of the date palm”, and consequently Sayce may have been right in his rendering of *epitātu* as “date stalk” (*ZK.* ii, 209). The translation qanêpi hâšuti is perhaps cognate to the Syr. hâš “pressed”, or hîšâ “hard” (or perhaps connected with hâwâšâ “mat”) or with the Ethp’al of the above root, *vinctus*, i.e. the reed-bundles used in building a hut, bound like the fasces of the lictors (or perhaps, from the variant hašuşute, simply “split”).

But the three synonyms from Šubari show that the plant proper was common in the north, and therefore can have nothing to do with the date-palm, which does not grow satisfactorily above Tuz Khurmati.

¹ K. 4417, ti.

² The *qur-šib-ta* is spaced out, and leaves little room for anything else, except perhaps „

³ Cf. *VM.* (K. tablet unpublished : *Mat.* 88, 1, 11) [(¹šam)GI-ZÚ-LUM-MA | ina qanêpi ha-šu-su-te.

⁴ Erasure of li.

⁵ Cf. *VM.* (*Mat.* 88, 2, 21) ¹šam_{BAD (= zir) GI-ZÚ-[LUM]-MA} | ina qur-šib-ti eqli.

We must regard the other value (^{šam}*quršibti eqli*) as representing a true plant, and probably Zimmern was right in *AF.* 58 in comparing it with the Syr. *qaršebhthā* "nettle". This is borne out by the synonym ^{šam}KIN-DU₁₃, KIN being the Assyrian *zaqtu* "sting", "point", the plant thus being "plant of the small sting(s)". Indeed, the word GI-ZÚ-LUM-MA suggests a resemblance to the date-palm which perhaps we may see in the peculiar way in which the nettle-seeds hang, not unlike the bunches of dates. ^{šam}LAM-ME ŠE (^{šam}LAM-MA) may similarly refer to the grains of the seeds.

(^{šam})GI-ZÚ-LUM-MA occurs thus in *MT.* :

(1) *Simply* (*qur-šib-ti eqli*) : *Eyes*, in ^{aban}MAŠ-DÀ-E bray, [apply] above, *AM.* 13, 6, 17.

(2) *Seed* : *Ext.* : alone (?), mix in oil, anoint, *AM.* 30, 2, 5. *Eyes*, †, [apply], *AM.* 10, 3, 32 : with adj. *si-ik-t[i]* (alone (?)) uncertain use, *AM.* 13, 2, 10. *Anus*, †, in suppository, *AM.* 94, 2, ii, 7 : *AM.* 101, 3, 5 (*zir* ^{šam}GI-ZÚ-LUM-MA). *Menses* (probably to stop) alone on wool with fat, apply uterus, *KAR.* 194, iv, 27. *Int.* : *Cough*, probably, alone dry, bray, in hot rose-water drink for three days, *AM.* 80, 1, 10. Alone for *jaundice*, [drink] in beer, *KAR.* 203, iv-vi, 60, *dup.* Scheil, *RA.* 1916, 37, 26 ([^{šam}]*zir* GI-ZÚ-LUM). When *stomach is sick* "and SIG₇ -SIG₇" (= *amurriqanu ša êni*), alone in *kurunnu*-beer drink, *Kü.* ii, i, 15.

(3) *Root* : †, anoint, *AM.* 88, 2, 8. *Anus-trouble*, †, *AM.* 58, 1, 9.

(4) *PA* (tops) : *Ext.* : *Eyes*, † (?), *AM.* 13, 1, 4. *Swelling*, alone, cut and heap up on the place, *AM.* 74, 1, 17 : with *PA* of *urzinu*, ditto, *ib.* 18 : †, bind on, *KAR.* 192, 48 (*cf.* 2).

Uncertain form of the plant : *Eyes*, alone (?), bray in honey, apply, *AM.* 16, 1, 20 (parallel to a similar trouble, *šêram alikam* "increasing flesh" where ^{aban}AŠ-MUR (arsenic) in ghee, *l.* 21, and cantharides, *l.* 23, are used. *Pelvis* ("middle") and *loins*, †, uncertain use, *AM.* 45, 6, 11.

Except for the use for eyes (which appears to be in such cases as call for the burning effect of cantharides or the use of arsenic), the parallels in later medicine are complete. *Diosc.* (iv, 92) prescribes the nettle for gangrene, and menses, and the seed as aphrodisiac and for lung inflammations. Pliny (*NH.* xxii, 15) says that the nettle cures procidence of the anus in infants : with salt it is used on sprains and tumours : with honey the seed clears the chest by expectoration, and is used with old oil for diseases of the joints and gout. The root pounded in vinegar is used for the same. In *SM.* the nettle is drunk, † (ii, 421), or applied, † (670), for a cough ; the seed is drunk for pains in the throat, † (204), liver, † (342, 400), stomach (410), and used as a plaster (441). *FHS.* 351 prescribes it for itch, esp. of the anus. It is used against menorrhagia (apparently *ext.*), *LPG.* 335, and Gerarde (571) says that it provokes urine, stirs lust, and is used for stone, humours in the chest, nose-bleeding, and difficult breath, and against serpents and scorpions. According to the *New Cycl. of Botany* (pub. Clark, ii, 491) nettles restore excitement in paralytic limbs, the root operates by urine and is used for jaundice.

C. 1. ^{šam}SI-SÁ, ^{šam}GAR-GÁN-GÁN, *šurdunû*, prob. *Eruca sativa* L., rocket, or sim.

2. (*šam*)GAR-GÁN-GÁN-(ŠAR), *gingiru*, *egingiru*; *Eruca sativa* L., rocket.
 3. *šam*ŠÀ-GI, *puglu*, *Raphanus sativus* L., radish.
 (A) Pl. 38, K. 5424, B, i-ii, 4-13 :

5.	[<i>šam</i> S]I — SÁ [<i>šam</i> GAR]-GÁN-GÁN [<i>šam</i> gin] — gi-ru [<i>šam</i>] -BU [<i>šam</i> GIN (?)] — GIR [<i>šam</i>] -mi	<i>šam</i> [<i>šur</i> -d]u-nu-u <i>šam</i> <i>šur</i> -[d]u-nu-u <i>šam</i> <i>šur</i> -du-nu-u <i>šam</i> gin -gi -ru <i>šam</i> gi-in-gi-ru zi ¹ - <i>šam</i> GAR-GÁN-GÁN
10.	[<i>šam</i>]ŠÀ — GI [<i>šam</i> KA OR GA] — TIN [<i>šam</i> HE — R]A	<i>šam</i> pu-ug-lu <i>šam</i> pu-ug-lu <i>šam</i> pu-ug-lu <i>šam</i> pu-ug-lu

(B) VAT. 9000 :

<i>šam</i> SI — SÁ <i>šam</i> GAR — GÁN — GÁN <i>šam</i> e-gi-en-gi-ru	<i>šam</i> <i>šur</i> (?) — [du-nu-u] <i>šam</i> [„] <i>šam</i> [„]
<i>šam</i> ŠÀ — GI <i>šam</i> GA — TIN <i>šam</i> HE ¹ — RA	<i>šam</i> pu — ug — [lu] <i>šam</i> [„] <i>šam</i> [„]

(C) 108860, CT. xxxvii, 29, i, 31-35 :

<i>šam</i> SI — SÁ <i>šam</i> GAR — GÁN — GÁN <i>šam</i> ŠÀ — GI <i>šam</i> KA — TIN (. .)	<i>šam</i> <i>šir</i> — du — nu — ú <i>šam</i> ditto <i>šam</i> pu — ug — lu <i>šam</i> ditto
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(D) Pl. 41, K. 8791, iii-iv, 12 :

GAR-GÁN-GÁN-ŠAR [zi]r „ ŠAR ŠAR	e-gim-[gi-ru] zir [„] ka-
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(E) Mat. 88, 4, 16-18 :

<i>šam</i> ? [<i>šam</i>] [<i>šam</i>]SI-S[Á]	<i>šam</i> gin-gi-ru <i>šam</i> <i>šur</i> -du-nu-u <i>šam</i> „
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¹ Glossed possibly *ma*(?)-*ra*(?).

These occur thus in *MT.* :

(a) *šam*SI-SÁ.¹

Seed: ext.: Head, †, bandage, *CT.* xxiii, 26, 4, *dup. TCPP.* 9 : *CT.* xxiii, 38, 35 + *AM.* 6, 5, r. 6, *dup. TCPP.* 40. *Cough*, †, uncertain use with IM-KAL-GUG, mercury, *AM.* 80, 1, 19. *Anus-trouble* with bruise (*dikša*), †, uncertain use, *AM.* 58, 2, 4.

Int. : apparently *strangury*, †, probably drink, *AM.* 60, 1, 8.

Fumigate. : "Poison," †, *AM.* 91, 1, 10.

(b) *šam*GAR-GÁN-GÁN :

Simply: ext.: Tooth, †, apply, *AM.* 36, 2, 3. *Eyes* (*šam*GAR-GÁN-GÁN) with mountain-honey and arsenic, *AM.* 8, 1, 26. *Lungs*, †, poultice, *AM.* 55, 1, 7.

Int. : *Aphrodisiac* apparently, "heliotrope, lupins, cynoglosson, *šam*GAR-GÁN-GÁN, *šam*ardašlum, *šam*kapullu, "gold fly" (cantharides), these seven drugs thou shalt pound, sift; thou shalt set before Ishtar a censer of pine(-incense), make a libation of beer, recite the incantation thereon seven times, give him (the drugs) to drink in wine; he shall drink (it) for three days, and recover on the fourth," *AM.* 88, 3, 5.

(c) (1) *šam*Gi-ir-gi-ru-u : *Anus-trouble*, alone, with fat, *KAR.* 203, iv, 6 : apply to *anus* in kidney suet, *ib.* 14 : apply to *anus*, *iv.* 15.

(2) *šam*Gim-gi-ra : simply, *eyes*, †, bind on, *AM.* 12, 6, 5. Note the form *šame-gi-en-gir* . . . occurring in a syllabary along with *šam*gir-gi-ru-[u] and *šam*gir-gi-[ru-u], *Pl.* 35, K. 4180, A, 33, 35, 47. All would appear from the various syllabaries to be the same word. *E-gi-en-gi-ri šAR* occurs *MB.* 34 along with *ašmidu šAR*, saffron and coriander.

Holma's comparison (*Kl. B.*, 67) with the Syr. *gargirā*, Arab. *jirjir*, *Eruca*, rocket, is correct. Note that Pliny says that it is thought that the rocket (*Brassica eruca* L., so Bostock) lightly bruised and employed as a fomentation for eyes will restore the sight to its original goodness (*NH.* xx, 49) and (*ib.* xix, 44) that it is an aphrodisiac. Preuss (*Bibl.-Talm. Med.* 320) says that *Eruca* was one of the drugs used for eyes. Gerarde (*Herball*, 193) says that the rocket stirs lust and urine, and provokes a good digestion; *GM.* 27, that it is diuretic.

(3) *šam*Puglu, which on account of its hot taste is associated here with the Rocket, will be the Aram. *pughlā*, Arab. *fiḡl*, radish (Del., *Proleg.* 84, n. 2). It occurs as *pug-ug-lu šAR* in *MB.* 42 along with *silqa šAR* and *lapti šAR* (see p. 51).

Cf. *CT.* xi, 48, ix-xii, 30, 31 :

<i>an-za-lu-ub</i>	|	GI-ŠÀ-GI	|	<i>gi-ša-a-gi-gu-u</i>	|	<i>ḥa-an-du</i> . .
<i>pug-ug-lu</i>	|	GI-ŠÀ-GI	|	<i>gi</i> ,,	|	<i>pu-ug</i> -[lu]

but it is not clear how GI-ŠÀ-GI, *puglu*, differs from *šam*ŠÀ-GI, *puglu*. GI-ŠÀ-GI apparently occurs, *AM.* 1, 3, 10, to be reduced alone, brayed and anointed in oil and beer for some head-trouble.

Note.—Post, *FP.*² 1, 321, says that *Brassica Napus* L., rape, is "rarely cultivated" in Syria-Palestine.

¹ Notice that *šam*SI-SÁ is prescribed only as seed, and the other forms as the simple plant.

XII

NARCOTICS

WITHANIA SOMNIFERA, MANDRAKE, HEMP (*CANNABIS*),
POPPY, HENBANE

- A. 1. ^{šam}HAR-ḤUM-BA-ŠIR, *Withania somnifera* (L.), DuR. (in D.C.), Henbane.
2. ^{šam}Ti[m]bu[t]ti eqli, synonym of the above.
(A) Pl. 18, K. 4354, xiv-xiii, 11-14 :

^{šam} te — i r — ' (?) . . . .	.....
^{šam} HAR-Ḥ[UM- BA-ŠIR]	.....
^{šam} N I M — T [A — E(?)]	.....
^{šam} [ , , (?) ]	.....

- (B) BM. 108860, CT. xxxvii, 29, ii, 5-11 :

^{šam} ti-bu-ti GÁN argu	.....
^{šam} IB-NI-BAD ut-līš	.....
^{šam} me-sīr UR-BAR-RA	.....
^{šam} šá-mi zi-me-le	.....
^{šam} KA-GIG-GA-GE	.....
^{šam} HAR-ḤUM-BA-ŠIR	.....
^{šam} N U — B U	.....

- (C) VAT. 9000 :

^{šam} HAR-ḤUM-BA-ŠIR	^{šam} šá -mu ra-pa-di
^{šam} šá-mu mi-sīr libbi	^{šam} , ,
^{šam} šá-mu KA-GIG-GE	^{šam} , ,
^{šam} N U — B U	^{šam} , , ina Šú- ba-ri

In identifying this plant we may first consider the stone of the same name, ^{aban}HAR-ḤUM-BA-ŠIR. (= *bahrê*, DACG. 172), which represents, I believe, the spherical red coral. The evidence for "coral" is (a) that in the Assyrian Glass Receipts this mineral [*ba*]hrê is the name given to a composition of glass in which an infinitesimal quantity of gold is used. This suggests the Purple of Cassius, which would give a result such as in later times would be called ruby : (b) *bahrê* suggests the Arabic *bahrî* "of the sea", which adds its weight to the identification with (red) coral (the white is, I believe, ^{aban}iaeri, DACG. 165). Finally (c) to ^{aban}*bahrê* is given the equivalence also of *muzaltu*, which suggests the Syr. *mauzalthâ*, *sphaera* (i.e. the shape of the coral beads, cf. Pliny, NH. xxxii, 11).

From this it appears that the plant ^{šam}HAR-ḤUM-BA-ŠIR should have some similarity to spherical red coral, and the comparison of the red berries of the *Withania somnifera* L. with this is obvious ; indeed, so like red coral are they that the modern Arabic name for the plant is *marjân* "coral" (FJ.² iii, 358).

It occurs thus in *MT.* :

Simply: *Ext.*: Toothache, alone (*below*). *Scorpion-sting*, †, mix in cedar-oil and anoint in oil, *AM.* 91, 1, r. 5 (*dup.* 92, 4, 10 ?). *Hand of Ghost*, †, *AM.* 70, 2, 15 (*dup.* *KAR.* 182, r. 28, *JRAS.* 1929, 812). *Swelling*, †, bind on (^{šam}HAR-ĦU-BA-ŠIR). *Head*, †, bind on, *KAR.* 202, ii, 47.

Int.: *Stomach-trouble*, drink alone in beer, *AM.* 48, 1, 9 + 78, 3, 6 (*RA.* 1929, 79, like *Ammi* alone, and poppy alone, *ib.*). *Strangury*, †, drink, *AM.* 31, 1, 7 (+ 59, 1, *Bab.* 1934, 122). One of thirty-seven drugs to drink for *urinary* trouble, *KAR.* 193, 7. From p. 215 it is also a drug for *misir libbi* (stomachic trouble) and *rapadi*.

The *Withania somnifera* (given the name also, besides "coral", of *sakrān*, the usual Arabic for an intoxicant, and *samm al-fār*), grows at Jaffa, Antioch, Jordan (*FJ.*² iii, 358): "very common along the shores of the Mediterranean, where it has always been reputed to be hypnotic" (*IMP.* ii, 904). As a drug it is used in powder, decoction, confection, and paste (*BMM.* 449), the root being "regarded as tonic, alterative, and aphrodisiac, and is used in consumption, emaciation of children, debility from old age, rheumatism, etc. (Dutt). It has also narcotic and diuretic properties. . . . The ground root and bruised leaves are employed as a local application to carbuncles, ulcers, and painful swellings (*Pharm. Ind.*). . . . The fruit is diuretic . . . (*IMP.* 16). When I was in Mosul in 1904 a friend of mine, Père Makdo, obtained some of the berries of this plant for me from the Kurdish Hills (it was kindly identified for me by Mr. W. Botting Hemsley, F.R.S., of the Royal Gardens at Kew), and I was told that the name was *ambubi*, and that it was used to fumigate an aching tooth (*PSBA.* 1906, 78).

The synonym ^{šam}ti(m)bu(t)ti eqli "ring of the field" is the same name as that of a small animal (*Fauna*, 43)

^{šam}tim-bu-u[t] eqli = ^{šam}a-r[a]-bu-nu
^{šam}gal(?) -pu -nu

Cf. also *Mat.* 88, iv, 54. The group follows "gold fly" (prob. cantharides) and precedes ^{šam}muni eqli.

Now "ring of the field" applied to some small animal of the lower orders would suggest perhaps woodlouse (*Oniscus*) which rolls itself in a ball. *Qal(?) -pu -nu*, however (a similar animal, an equivalent) in spite of the Greek σκολόπενδρα looks not unlike the Syr. *qlpndr*, millepes, but this is uncertain. But be it woodlouse or centipede, the picture of the henbane-seeds neatly curled up not unlike a woodlouse, suggests that we have something of the kind in the animal *timbutti eqli*, and add something more to our identification with henbane. There is also a ^{šam}tibuti eqli *argu* "yellow *tibuti* of the field", which may be the *Hyoscyamus pallidus* Kitaib, or *H. pusillus* L. (called in Arabic *ṣufairā* (*FP.*² ii, 263). ^{šam}Timbutti eqli occurs thus in *MT.* : for AN-TA-ŠUB-BA (when the patient "chokes and spits") bind on ^{šam}timbut eqli, †, *KAR.* 186, r. 43. *Stomach*, [^{šam}tim]butti eqli, †, *AM.* 64, 2, 8. *Anus-trouble*, dry and bray ^{šam}ti-bu-ti eqli and apply alone in fat, *KAR.* 203, r. vi-iv, 11, *dup.* *Pl.* 30, S. 698, 17. (It should be noted that the woodlouse or milleped is used in medicine in *NH.*, s.v., Index, and the milleped for asthma in *SM.* ii, 217. *Onisci* were found beneath stones in March near Mosul, Ainsworth, *T.* ii, 131.

B. (^{šam})(^{iš})(^d)^{NAM-TAR}(-^{*GIR}₁₂), *pi(l)lû*, *Mandragora officinalis* D., mandrake.

^{iš}^{NAM-TAR}, ^{iš}^{NAM-TAR-RA}, ^{iš}^{NAM-ER}₁-ZA, ^{iš}*pil-lum* = *pi-lu-û* (Meissner, *MVAG.* 1913, 2, 27, v, 74-7): K. 14030, *Pl.* 35 gives:

.....	^{šam} _N [AM(?) - TAR]
.....	^{šam} <i>pil-lu-u</i>
.....	^{šam} <i>pil-lu-u</i>
.....	[zi] ^r ^{šam} ^{NAM-TAR}
.....	... ^{šam} ^{NAM-TAR}
.....	..... -nu

I am inclined to doubt if the *pi-lu-û* (*pil-lum*) of Meissner, *MVAG.* 1913, 2, 14, i, 16, and *Mat.* 1, i, 13 (= ^{iš}^{GEŠTIN-RA}, perhaps aubergine) has any reference to the same plant as the *pil-lu-u* here given, although philologically the words may be the same.

In *AH.* 187 ff., I took the ^{iš}^{NAM-TAR} (-^{*GIR}₁₂) to be the mandrake, but Langdon, *JRAS.* 1925, 552, doubted it, and I continued the discussion in *JRAS.* 1926, 100. I append my reasons for still maintaining this identification:

1. ^{iš}^{NAM-TAR}-^{*GIR}₁₂ represents the "male Plague-god plant", with a very obvious phonetic similarity to the Greek *μανδραγόρας* doubtless by a "merchants' garbling". M. Thureau-Dangin kindly pointed out to me, after I had compared ^{iš}^{NAM-TAR} with *μανδραγόρας*, that the word for "male" could be read *IRA* which added to the value of the identification. Professor Langdon (*l.c.*) improved on this with the value ^{*GIR}₁₂, from the equivalence

^dU (= *šarru*) — NITA (= *IRA*, *i.e.* ^{*GIR}₁₂)-RA = ^dLUGAL-GÎR-RA, although at the same time he raised objections to the identification with mandrake. But these objections, I confess, do not seem to be serious, and not less so since he suggested that *mallakal* (as a possible "mandrake") offered less difficulty philologically for the comparison, and tried to make ^{iš}^{NAM-TAR} the laurel and laurel-berry.

Continuing, therefore, from the standpoint that we have the origin of *μανδραγόρας* in our ^{iš}^{NAM-TAR}-^{*GIR}₁₂, we can add to its association with the Plague-god the Arab names "Devil's Testicles" (*p.* 218), and *tuffāh al-jinn* "Apple of the Jinn", as parallels (*FP.*² ii, 26: *FJ.* iii, 367).

2. *Pi(l)lû*, as equivalent, is philologically near to the Arabic *tuffāh* "mandrake", in spite of Langdon's remark "metathesis of a doubled letter would be impossible, and the addition of *h* is also impossible unless a common root *palāhu lapāhu* be assumed". I confess I cannot see that any "addition of *h*" is in question: *h* is one of the well-known regular equivalents for an Assyrian simple breathing merging in the vowel-sound; and I should be sorry to say that anything was impossible in Assyrian philology, particularly here, since we have the outstanding and obvious parallel *nurmû* "pomegranate", Heb. *rimmôn*, Arab. *rummānāh*, (and even *musukkanu* = *σνκάμνος* "mulberry").¹

Moreover, Professor Langdon's own suggestion (*l.c.*, *p.* 553) that

¹ Are we to see an additional metathesis in the Syr. *pehlāhā* "testicles"?

"the identification rests upon the further identification of *šampilû* with *pilû* 'egg' and the resemblance of *luffûh* to the egg-plant" fits the mandrake admirably. Gérarde (280), following Diosc., says that there is a male and female mandrake: the Syriac (*SM.* ii, 708) mentions its two little balls "like the testicles of a man", and the Arab. name is "Devil's testicles", which coincides well with the Assyrian "male NAM-TAR-plant" (*FP.*₂ ii, 261).¹ The Semitic word for "egg" is, of course, applied to "testicle". It may also be noted that in *AM.* 47, 1, 2, the *ûr* of this drug is prescribed, less probably perhaps with its meaning "root" than the value *sûnu*, with sex-significance. *Br.* 4831 gives the value . . . *ûr* = *du-û-tum* (Mr. Gadd suggests to me, from an examination of the tablet, that *šêru* "flesh" should be supplied in the blank), *dûtu* having a male-sex meaning, e.g. iv *R.* 57, a, 8-9 (*MA.* 270: *HWB.* 214), *ša eḫli damqi dussu* (= *dût-su*) *ikim*, *ša ardati damiqti inibša ibbal* "of the handsome man she snatches his *dûtu*, of the fair maid she takes away her *inbu*". I owe to Mr. Gadd a reference to the following:

TI = *dûtum*
 BAR = *baštum*
 SAG = *mutlatum*

(De Genouillac, *RA.* 1913, 78). *Baštum* is surely *baltum*, Heb. *bôšêth* "shame" (genitals), and since TI also = "life" we may see in *dûtu* the parallel idea "testicle" (to be compared to the Heb. (dual) *dûdhâ'im* ("two testicles"?, mandrake).

In *VM.* we get

(a) . . . NAM-TAR | *ina mal- aš -ba-bu*
 (K. 8764: *Mal.* 88, i, 77)

(b) *šam* ^{is}NAM-TAR | *ina MI pap-ḫal-la-tum imeri*
šam ^{is}NAM-TAR | *ina šu-pur kalbi šalmi*
 (*JRAS.* 1929, 810: *Pl.* 44, 5-6: K. 8782).

Note that in the line following *šamḫašû* is given exactly the same sequence, so that we cannot see a reference to the traditional extraction of the mandrake by a dog in the phrase "by the claw of a black dog".

^{is}NAM-TAR (-*GIR₁₂) occurs thus in *MT.*:

(1) *Simply*: *Ext.*: Toothache, alone, apply, *Pl.* 23, K. 259, 1, *dup.* *KAR.* 203, i-iii, 1.

Int.: Urinary trouble, alone, drink, Lutz, *AJSL.* 1919, 80, 1, 2.

(2) Root (*KAS*₈): Toothache, alone, apply, *Pl.* 23, K. 259, 2 (*cf.* *AM.* 30, 3, 10, *šu-ru-uš* ^{is}NAM-TAR -*GIR₁₂): apply the white of the inside of a MUŠ-DIM-GURIN-NA (caterpillar or maggot, *AJSL.* 1937, 34), † (?), on wool, and then root of ^{is}NAM-TAR -*GIR₁₂, †, on the tooth . . ., *AM.* 28, 1, 3. Feet "full of sicknesses", dry the root alone, crush, sift, bind in neat's foot oil, *AM.* 74, 1, ii, 24: probably to assuage pain in hands and feet, †, rub, *AM.* 98, 3, 2. Temples, †, bind, *AM.* 103, 1, 15. Difficult childbirth, "root of NAM-TAR-*GIR₁₂ of the north,"² bray, mix

¹ According to Sprengel (*Diosc.* ii, 604) the "male" is *M. vernalis* Bertholon, and the "female" *M. autumnalis*.

² Expanded in *Kü.* iii, iii, 9, to "which does not bear fruit".

in oil, seven times *anu mukkalpiti* rub her navel (*pa-pan libbi*), she will bring forth", *AM.* 67, 1, iv, 12, *dup.* *KAR.* 196, iv, 19. *Stomach*, †, drink in beer, *Kü.* i, i, 1 (^{is}NAM-TAR). *Anus-trouble* (probably hæmorrhoids which have to be burnt), bray and mix cantharides with the root of ^{is}NAM-TAR-^{GIR}₁₂ (as analgesic) *tukappat*, apply to anus, *AM.* 57, 5, 14: *anus-trouble*, mix with root of GI-ZU-LUM-MA, and perhaps, with fat, make a suppository, *AM.* 58, 1, 9. ^{isam}KAS₅ ^{is}NAM-TAR-^{GIR}₁₂ "a drug for sick anus", mix with fat, insert in anus, *KAR.* 203, vii, 5, *dup.* *Pl.* 30, S. 698, probably.

Suppository, for *anus-trouble* (?), †, *KAR.* 201, 40: †, root of ^{is}NAM-TAR-^{GIR}₁₂, *ib.* 43. *Suppository*, †, *KAR.* 201, 48. *Hand of Ghost*, prob. †, prob. *ext.*, *AM.* 4, 6, 11 (^{is}NAM-TAR-RI-^{GIR}₁₂) (*dup.* or nearly so, *KAR.* 182, r. 29 ff., *AM.* 70, 2, 11, and cf. *AM.* 96, 4, 1 ff.).

Fumigale: "Poison" of flesh, †, *AM.* 91, 1, 11.

Int.: *Stomach*, alone in beer and *iarrum* (^{is}NAM-TAR-^{GIR}₁₂), *Kü.* ii, i, 45: †, drink (?), *AM.* 42, 5, 7 (*isid* ^{is}NAM-RI-UŠ), drink, *Kü.* i, i, 17, 23 (and enema). Some *female trouble*, with seed of *Lycium*, seed of *Caper*, root of ^{is}NAM-RI-^{GIR}₁₂, bray, drink, in beer, *KAR.* 194, iv, 5. *Jaundice*, drink with ^{isam}marti in beer, *Kü.* iii, i, 25: †, drink ("root of ^{is}NAM-TAR-^{GIR}₁₂ of the north which does not bear fruit"), *Kü.* iii, iv, 9. *Urinary trouble*, 1 *qa* KAS₅ NAM-RI-UŠ,¹ †, drink, Lutz, *AJS.* 80, i, 11.

(3) ZID (powder): ^{is}NAM-TAR-^{GIR}₁₂, for strangury with ZID of ^{isam}U-GIR-RIM, drink in beer, *AM.* 59, 1, 30.

(4) PA (tops): application to *eyes*, †, *AM.* 16, 3, 5. PA ^{is}NAM-TAR, *AM.* 31, 7, ii, 12.

(5) Seed: For *kurara* (itch or similar) in head, †, prob. *ext.*, *AM.* 5, 5, 13 (*zir* ^{is}NAM-TAR).

(6) BI + IS (re-exd., *sic*) of ^{is}NAM-TAR-^{GIR}₁₂ "while [it is] green" (see *JRAS.* 1937, 275), for feet full of fissures, *AM.* 69, 5, 2.

(7) UR: "When a man lies down, and his sleep comes gently upon him, and it is heavy,² GUR . . . , for his recovery UR ^{is}NAM-TAR-^{GIR}₁₂ (and) ^{isam}qurban eqli (chamomile) thou shalt bray, mix in fat, make a suppository . . ." (*AM.* 47, 1, 1) (UR may be the "testicles", p. 218). (Note also the mutilated text ^{is}NAM-TAR ina eli ^{is}gisimmari DUL-DU . . . "Namtar-plant, which springs up against a palm-tree", at all events indicative that the ^{is}NAM-TAR grew in S. Babylonia (*KAR.* 180, ii, 7).)

The use in *MT.* is supported by other pharmacopœias. Pliny (*NH.* xxv, 94) gives the mandrake as narcotic, and for eyes: "the name given to the white plant (variety) by some persons is arsen (male)." Theophrastus (*EP.* ix, ix) says that the leaf is useful for wounds with meal, the root for erysipelas, gout, and sleeplessness. *EB.* xith ed., xvii, 566, says that the drug is purgative, emetic, and narcotic. *M. officinarum* L. is common in Syria and Palestine (*FP.*² ii, 262). George Smith evidently speaks of the mandrake at Urfah (*Ass. Disc.* 161).

¹ For ^{isam}NAM-RI, cf. *Kü.* ii, i, 49. "Root of ^{isam}NAM-RI-NITÁ," †, as suppository to anus *KAR.* 201, 43.

² I-ka-šu-uš.

- C. ^{šam}A-ZAL-LÁ, *azallû*, *Cannabis* (especially *Indica* Lam.), hemp.
Pl. 25, K. 4398 + 4418-i-ii, 7-14 :

^{šam} A-ZAL-LÁ	^{šam} a-zal-lu-u
^{šam} šá-mi ni-is-sa-ti	^{šam} a-zal-lu-u
^{šam} gur-gur-ru	^{šam} a-zal-lu-u
^{šam} GÁN-ZI-GÙN-NU	^{šam} a-zal-lu-u
^{šam} HAR-GUD	^{šam} gur-[gur-ru]
^{šam} HAR-MU-UM	^{šam} gur-[gur-ru]
^{šam} A-ZAL-LÁ	bur-
^{šam} A-ZAL-LÁ ul -liš	^{šam} . . . sâmu ¹

The meaning of this plant is, I think, certain. ^{šam}*Azallû* will be cognate with the Syr. '*uzal* "to spin". This meaning reappears also in ^{šam}*gurgurru*, which we may also see in the group given in Strassm., *Alph. Verzeichn.* 1747. GIŠ-MÁ-GUR-GUR = ŠU-rum (*i.e.* *gurgurru*). The root *garâru* means "to roll, twist round" in one of its values, as is shown by *maḡarru* "wheel", and also in the following use of the root in a prescription for difficult childbirth: ¹⁸ḫaḫḫi ¹⁸MA-NU ² šá qat ri-'i šiptu 7-šú tamannu(nu)-ma ulku rîš libbi-šá ana šap-la-an libbi-šá tuš-gar-ra-ár "a staff of laurel from the hand of a shepherd; the incantation 7 times thou shalt recite, and roll (it) from the top of her stomach to the lower part of her stomach" (*KAR.* 196, r. iv, 8).

A form of this word, *qarara ša mēn* "eddies of water" occurs (= HAL, *CT.* xli, 45, No. 76487, 9).

Perhaps I may add here *iktenirru* "is twisted" of the mouth (?), *AM.* 85, 1, vi, 9, and "in the boiled water of *Vitex* thou shalt roll (*tugarrar*) the bandage (LAL) of his head". *CT.* xxiii, 26, 8, *dup. TCPP.* 398, 14. The Persian word *gargarinj* (hemp) would appear to be our word *gurgurru* with the ordinary Persian termination *-nj*, which existed in late Assyrian times as *-angu* (*p.* 108).

With '*zal* "to spin", and *gurgurru* probably "cable" we can consider the equivalent, ^{šam}*šami nissati* "drug for grief,³ depression of spirits" (augmented from *BRP.* iv, 37, 19, *JRAS.* 1924, 156: ^{šam}A-ZAL-LÁ: *kîma šamkanašû u sâmu*: ^{šam}A-ZAL-LÁ: *šam nissat bašê* "^{šam}*azallû* like *kanašû* (opium) and red, ^{šam}*azallû*, a drug when there is a depression of spirits").

Here obviously we have the essential characteristics of Hemp, particularly *Cannabis Indica*, hashish, *binj*, (*a*) as the material for making ropes, and (*b*) as an intoxicant and drug for mental exhilaration (*AH.* 100). Herodotus (iv, 74, 75) says that the Thracians made garments from hemp and used the seeds on red-hot stones for intoxication (*i.e.* the fumigation of the Assyrian prescriptions) "the Scythians, transported

¹ Re-examined: *sic.* Has . . -ga-ru-ú = ^{šam}a-zal-lu-[u] (*Pl.* 37, 81-2-4-269, 7) any connection here? Note also *Pl.* 27, S. 1920, 1.

² Cf. *KAR.* *ib.* 4, and ¹⁸ḫaḫḫi šá ¹⁸MA-NU . . . *AM.* 101, 2, r. iii, 8. The "rolling" suggests that the shepherd's staff is a straight cylindrical stick, without a crook.

³ Pinches, *PSBA.* 1909, 64, recognized the meaning "herb of grief", but did not pursue it further. Langdon, curiously enough (*RA.* 1933, 109), compared, I think erroneously, the *gurgurru* to the Talm. *gargirâ* "rocket".

by the vapour, shout aloud" (cf. also i, 202). Susruta on Indian medicine (B.C. ?) mentions *b'hanga* as a remedy (*PH.*, 2nd ed., 547 ff.), and a Chinese Herbal, c. fifth cent., notices two kinds.

With ^{šam}*azallû* as definitely "hemp", we can follow up the meanings of its synonyms.

^{šam}GÁN-ZI-GÜN-NU is a most interesting form, built up of GÁN-ZI, a group given as equivalent of ^{šam}*kanašû* (opium) as GÁN-ZI-ŠAR (cf. ^{šam}GÁN-ZI *šadi*, p. 13). GÁN-ZI-GÜN-NU is equivalent for hashish, it may well be suggested that the GÁN has its usual value *habbilu* "robber" and ZI its value *napištu* "soul", i.e. "the drug which takes away the mind". GÜN-NU, the latter part of GÁN-ZI-GÜN-NU (hemp, hashish) must then be some form of the equivalent for GÜN, *burrunu* (cf. p. 220, l. 13, *bur*...) originally "to twist, to weave" (*Šurpu*, v-vi, 115),¹ as well as "to be two-coloured". Consequently our equivalent for ^{šam}*azallû*, ^{šam}GÁN-ZI-GÜN-NU means "plant + narcotic + weaving", i.e. hemp. As Sir David Prain pointed out to me, there is great similarity, superficially at least, between GÁN-ZI and the Hindustani *gāñjhā*, *Cannabis* (see *DACG.* xviii).

^{šam}HAR-GUD, *imrû*,² *ballu* (i.e. "fodder") is possibly the hemp oil-cake, a valuable food for cattle (*EB.* xith ed., xiii, 263).

^{šam}HAR-MU-UM might possibly be a Semitic word *har-mu-um*, perhaps connected with the Heb. *hêrēm* "net" (rather than "the forbidden thing"): cf. Pliny, *NH.* xix, 56, "the best hemp is that of Alabanda, which is used more particularly for making hunting-nets."

^{šam}*Azallû* occurs thus in *MT.* :

(1) *Simply*: ext.: *Temples*, †, bind, *AM.* 102, 39. *Stomach*, †, anoint in oil, *AM.* 52, 4, 4 (in a similar affection, †, boiled as enema, *KAR.* 157, 7). *Swelling*, anoint w th ^{šam}EL in petroleum, *KAR.* 192, ii, 32, *dup.* *AM.* 73, 1, ii, 8 (*JRAS.* 1937, 417). *Poultice*, †, *KAR.* 192, 6 (*dup.* *AM.* 15, 3, 23, *JRAS.* 1937, 284). *Hand of Ghost*, anoint, †, in oil, *AM.* 94, 2, ii, 12. For *arimtu* (which seems to mean some loss of control of the lower limbs), †, roast, and bathe legs, *AM.* 70, 3, 1, 4.

A-ZAL-LÁ-ŠAR occurs in a prescription against a swelling: "the poison of his sickness being black" (i.e. a bruise) [apply] drugs mixed in fine-ground flour" (ZID-ZID) *ina* A-ZAL-LÁ-ŠAR (i.e. on hemp) "or variant, PA (tops) of tamarisk", *KAR.* 192, 34. (Hemp is used as a pledget for the anus with various drugs in pigs' oil, *SM.* ii, 678).

Int.: *Depression of spirits*, eat and drink alone without a meal, *KAR.* 203, i, 59: for ŠA-ZI-GA (i.e. impotence), and "that he have not depression of spirits", *ib.* r. iv, 35. *Hand of Ghost*, †, drink in beer, *AM.* 76, 1, 21. *Stone in kidney*, with ostrich-egg-shell . . . anemone, thistle, in date-water and *kurunnu*-beer, drink, Lutz, *AJSL.* 1919, 81, ll. 76 ff. Apparently after having eaten or drunk something bewitched, one of twenty-two [drink] in beer, *AM.* 87, 5, 15: similar (to annul witchcraft), †, drink in wine or beer, *AM.* 89, 1, 5. Uncertain, †, drink, *AM.* 41, 2, 7: 97, 2, 4.

¹ *Mār amelišpari ana šubati la ubarra[mu]* " (as) no weaver shall weave this wool into a garment".

² By an oversight in *DACG.* xviii, l. 18, I have obviously slipped in putting *ibaru* for *imrû*.

Fumigate: For "poison" of all limbs, †, dry, pound, sift, and fumigate, *AM.* 91, 1, 10. *Hand of Ghost*, †, *AM.* 99, 3, r. 4.

Quantity: (uncertain use) $\frac{1}{2}$ carat (or $1\frac{1}{2}$), *AM.* 91, 6, 2.

(2) *Seed*: *ext.*: *Depression of spirits*, crush seed of *šam*azallû, mix with seed of *šam*DIL-BAT (probably *Mesembryanthemum*), bathe the patient in water, Ebeling, *MAOG.* 1933, 42, 17 ff. *Evil Eye*, anoint alone in . . . juniper-oil, *KAR.* 203, i, 60.

Int.: ZI-TAR-RU-DA ša GA-RIM, *Liebesz.* 50, 7 (for symptoms see *AJSL.* 1930, 25), †, drink, *AM.* 90, r. 20. [Staying] *menses* with mint and saffron in beer, *KAR.* 194, iv, 1.

(3) *Huṣab*: note the ritual iv *R.* 55 (62), i, 13, "14 *hu-ṣab* *šam*A.ZAL-LÁ" to be knotted on a white thread and hung on the neck.

The uses of *šam*azallû in *MT.* obviously coincide with the uses of hemp (*Cannabis*) in later medicine. Hemp is a native of the temperate parts of Persia (*etc.*), and is said to have been introduced into Italy in the Roman period. The Indian Hemp differs in no respect from the common plant, unless in being somewhat taller and having the leaves more constantly alternate (*BMP.* No. 231). It has been administered for neuralgia, coughs, tetanus, and hydrophobia (*ib.*). Post (*FP.*² ii, 513) describes the *qunnab*, hashish, as cultivated everywhere (Syria-Palestine) for the fibres of the bark from which the cordage is made. The dried flowering tops of the pistillate plants, from which the resinous exudation has not been removed, are the official *Cannabis Indica* (*gāñjā*, *BMM.* 502), while *bhāṅg* is the dried, coarsely broken, larger leaves, mixed with a few of the fruits. *P.* 315 prescribes *Cannabis* as sedative, and anodyne, and used for menorrhagia and dysmenorrhœa. *Bhāṅgā* is used in India for dyspepsia, gonorrhœa, and applied locally to fresh wounds (*BMM.* 502). It should be noted that Rich (*Koord.* i, 134) says that no hemp is grown in Kurdistan, but on the other hand Hoefer (*Chaldée*, 181) mentions it as *kimbis* in Mesopotamia.

(2) *ria*Qunnabu, *ria*qunubu.

Towards the end of the eighth or first half of the seventh century B.C. the word *ria*qunubu has come in, it being mentioned on a Sargonid letter, *ABL.* 368, 13) to the King's mother, along with myrrh, *etc.*, in reference to certain *dullu* (work, or rites), Ebeling (*Tod.* 47, 10) restores a descriptive passage thus: [*qu-u*]n-nu-bu za-ba(?) -šu(?) "[Ha]nf (?) sein . . .", but it seems very unlikely. *Qunnabu* is found in the sixth century (31st year of Nbk.), Scheil (*RA.* 1921, 97, trans. of Keiser, *Letters*, No. 162) seeing *Cannabis* in it.¹

In a very late ritual (Thureau-Dangin, *RA.* 1920, 70, 5) there is a mention of 10 shekels of *ria*qu-an-na-bu, a curious word, in juxtaposition to *ria*ka-ši-ši-ḥa-tum, l. 6.

¹ This tablet is interesting as giving the comparative values of drugs in S. Babylonia at this time: (1) 2 pi 30 qa *ria*burāši ana 5 šiglu kaspi; (2) 30 qa kukru ana 3 šiglu kaspi; (3) 15 mana *ria*šulalē; (4) ana 5 šiglu kaspi; (5) $\frac{1}{2}$ mana *ria*qunnabu; (6) ana 3 šiglu kaspi 4-tū LAL kaspi ("less $\frac{1}{4}$ of silver"); (7) 2 $\frac{1}{2}$ mana inzaḥurētu; (8) ana 10 šiglu kaspi; (9) $\frac{1}{2}$ billu *ria*asī (so Scheil, but possibly *μικ*, *ballukku*); (10) u šim-šal, ana 5 šiglu [kaspi]. "102 qa of burāšu (pine), for 5 shekels of silver, 30 qa of kukru (fir), for 3 shekels of silver, 15 mana of šulalē (a gum) for 5 shekels of silver, $\frac{1}{2}$ mana of qunnabu (*Cannabis*) for 3 $\frac{1}{4}$ shekels of silver, 2 $\frac{1}{2}$ mana of inzaḥurētu (blue dye) for 10 shekels of silver, $\frac{1}{2}$ talent of myrtle (but perhaps *balukku*, liquid amber or styrax) and šim mešāu (perhaps box) for 5 shekels of silver."

CT. xxxvii, 32, 108860, iv, 25 :

25. <i>šam</i> UKUŠ-RIM	<i>šam</i> me(?) - ru-ú
<i>šam</i> šá-mu ?	<i>šam</i> ditto
<i>šam</i> na-at- . . . (?)	<i>šam</i> ditto
<i>šam</i> NAM- TIL-LA	<i>šam</i> ditto
<i>šam</i> ŠI — ŠI	<i>šam</i> ditto
30. <i>šam</i> im-lu-(ur) li še(?) (= mu)	<i>šam</i> ditto
<i>šam</i> bu -la-li	<i>šam</i> ditto ina Šú-ba-ri
<i>šam</i> a-zu-mu	<i>šam</i> ditto
<i>šam</i> ša-mu maru	<i>šam</i> ditto

In *AH.* 46 *šam*UKUŠ-RIM was restored in the left-hand column on the grounds that (1) a plant beginning with UKUŠ was demanded by this connection : (2) *šam*UKUŠ-RIM occurs in l. 29 of the text on p. 223. As for the restoration [*šam*i]r-ru-u Meissner (*SAI.* 8373) had already seen that *šam*UKUŠ-RIM-ŠAR must represent some Semitic word taken from the root *arāru*, since *Maqlû* v, 37 (*kima šam*UKUŠ-RIM-ŠAR *liruruši kišpuša*), is definite that the Assyrians accepted this. Haupt (*ZA.* xxx, 1915-16, 60) on slender grounds had seen "opium" in the plant *irrû* (cf. *Kü.* 105), and, it being obvious that this must be the word to be restored in (1), ultimately proved by *ir-ru-u* in (2) above, in *AH.* I adopted Haupt's "opium", which appeared to fit well.

The root of *irrû*, i.e. *arāru*, reappears in the plant *šamararu*, after the interpolation of one small group (*šam*UKUŠ-TI-GIL-LA, colocynth) in p. 81. Now the intrusion of this word *šam*UKUŠ-TI-GIL-LA, colocynth, between *šam*UKUŠ-RIM (= *irrû*) and *šamararu* is obviously due to the fact that *šam*UKUŠ-RIM and *šam*UKUŠ-TI-GIL-LA both begin with the sign UKUŠ, which will presently be seen to represent the cucumber-like fruit of both poppy and colocynth. The Assyrian botanist, having thus interpolated the *šam*UKUŠ-TI-GIL-LA, returns to the other forms of *šam*irrû, and thereafter to poisonous plants of an allied nature.

We can, for the moment, therefore, omit the *šam*UKUŠ-TI-GIL-LA, and continue with the following section, completing therefrom the words cognate to *šam*irrû.

Pl. 22, K. 267, viii-vii ; CT. xxxvii, 32, 108860 (iv, 34-7) :

<i>šam</i> mârat eqli	<i>šam</i> a-ra-ru
<i>šam</i> ŠÁ-LAM-BI-TUR-RA	<i>šam</i> [a-ra]-ru ¹
2 <i>šam</i> ĀŠ-DUG ₄ -GA	<i>šam</i> [a-ra]-ru ³
2 <i>šam</i> PA-PA-PA	<i>šam</i> a-rat a-ra-ru
2 <i>šam</i> a-a-ba SA	<i>šam</i> „
4 <i>šam</i> a-ra-ru ul-liš	<i>šam</i> lu-lu-tu sâmtu
<i>šam</i> a-ra-ru	<i>šam</i> ha-an-zi-ba-tú ⁵

¹ 108860, *šam*[„],.² 108860 omits this line.³ *Nat.* 88, 3, 77, *šam*ĀŠ-DUG₄-GA = *šam*a-ra-[ru].⁴ 108860 changes places with next line, reading *šam*lu.⁵ 108860 *šam*ha-za-[ba-tu].

Note also Langdon, *RA.* 1916, 34, 8 :

šamšā „ (= ŠÁ-LAM-BI) TUR-RA (v. DA) ŠAR¹ | *a-ra-ru-ú* | *aš-šul-tum*

With these before us we have to settle that *šam*UKUŠ-RIM, *irrú*, *šamararu* and *šamararú* are forms of poppy or opium.

From the above we have *šam*máral *egli* = *aruru* = *utliš šamlulu(m)tu(m)sámtu* : “daughter of the fields” = *aruru* = “in the mouth of the common people ‘red bloom’”.² This is a very good first indication that we are on the track of the red poppy, which is one of the beauties of the Mosul fields,³ the only other possible flower, in point of fact, being the red anemone (*p.* 141).⁴ Since *šamararu*, so far as I know, does not occur in *MT.*, and yet *šam*UKUŠ-RIM appears some forty times, we should be justified in making the deduction that the former represents the flower (*i.e.* the simple form *aruru*), and the latter the capsules from which the product, an inspissated milky juice, is obtained (*irrú*). The form *merú*, synonymous with (or perhaps erroneous for) *irrú*, may be from *maráru* “be bitter” (see *p.* 223, *n.* 15), but this is uncertain ; at all events it is in the particular group given as equivalent to *merú* that *šamšī-šī* (probably the heliotrope) is also mentioned, which suggests that *šam*merú has certain doubtful implications.

We can trace this meaning “opium” for *šam*UKUŠ-RIM thus in *MT.* :

(a) *Simply*: *Ext.*: *Eyes* (double vision ?), †, including *lipī nēši* “lion fat”, a synonym for opium (here *šam*UKUŠ-RIM is glossed *šam*RIM), *AM.* 17, 4, 9. Feet (“like *bubulte iḥarraṣ*”) dry alone, bray, apply, *AM.* 74, iii, 15 : broken footsole, dry alone, pound, mix in fat, bind on, *ib.* iv, 18. Swelling, alone, bray, bind on, *KAR.* 192, 1, 39.

Int.: *Stomach*, 7 grains, †, drink *KAR.* 157, *r.* 2 (*cf.* 7 grains of *šam*NAM-TI-LA, also opium, in the recipe following, *ib.* 7, for strangury). *Stone* (in kidney), alone in beer, drink, Lutz, *AJSL.* 1919, 81, iii, 68 (!).

Suppository: †, and fat of kidney of a male ship, *AM.* 57, 4, *r.* 7. To insert in *anus*, †, in fat, *AM.* 94, 2, ii, 7. “*šam*UKUŠ-RIM of the north”, with mandrake-root and perhaps †, make a “finger”, insert in *anus*. *KAR.* 201, 40.

Enema: *Stomach*, †, *KAR.* 157, *r.* 21.

Uncertain use: “retention of sick *anus*,” †, *AM.* 40, 5, iii, 17.

(b) *Seed*: *Ext.*: *Weak hair* (?), †, *AM.* 4, 1, 26. *Temples*, †, after shaving the head, bind on, *CT.* xxiii, 39, 1.

Int.: *Urinary trouble*, alone in . . . (?), drink, *AM.* 59, 1, 18. *Stomach*, with mustard in beer drink, *Kü.* i, ii, 31 : †, in beer drink, *Kü.* ii, iii, 16.

¹ *CT.* xi has | . . . | . . . | *šamzi*. . . . | *a-ra-ru-ú*.

² Landsberger (*ZA.* 1933, 231) still considers it a kind of cucumber on account of its ideogram UKUŠ, and wants to make it “colocynth” : “Dass Meissner die Haupt’sche Bedeutung *irrú* = ‘Mohn’ als sehr wahrscheinlich bezeichnet und Thompson (Herbal 46) von dessen Beweisführung sagt : ‘in spite of weak premises, he was right’ ist schwer zu verstehen, denn alle Voraussetzungen dieser Identification sind völlig haltlos.”

³ Doubtless *Papaver rhæas* L. Herzfeld (*Beih.* ii, 33) saw *Glaucium grandiflorum* Boiss. at Qala’ah Sherghat.

⁴ *Lulu(m)tu(m)* needs a note. It is properly the Spurge, *Euphorbia helioscopia* L. (*p.* 150), having a green flower, which may well be regarded as of similar shape to that of the Poppy. *Lāla* is used in India for “poppy” (*P. rhæas*, *IMP.* 76), and the Arabic *lūtū* is “pearl”. Gerarde (305) says that some of the anemones are called “in Turkie toong” *lulé benzedé*.

(c) ŠE-RÚ (shoot): *Uncertain use, flesh, AM. 69, 1, 16. Stomach, alone in wine, honey, and purified (ḫalši) oil, drink, Kū. iii, i, 36.*

(d) Root: Probably *head*, reduce alone, bray, apply, *KAR. 191, r. 9 [Anus (?)], alone, reduce, apply, KAR. 191, r. 9. (As šuruš, root) for a head full of murši^{vt} matquti, probably alone, dry, pound, apply, CT. xxiii, 50, 8.*

(e) Fat of šamUKUŠ-RIM (cf. in contrast alongside it, PA šamUKUŠ-RIM): *Ext.: Stomach, †, poultice, AM. 40, 5, iii, 10. Swelling, with PA šamUKUŠ-RIM, and fine-ground flour, bind on, AM. 73, 1, i, 22 (dup. KAR. 192, 17).*

Int.: Stomach-ache, †, [drink], Kū. ii, i, 22, cf. Kū. ii, ii, 12, 26. Pregnant woman, †, dry, bray, drink in oil and beer, KAR. 195, 28.

(f) PA (tops): *Ext.: Šiggati (blains), †, bind on, AM. 32, 5, 5, 7 (cf. 93, 2, r. 9). Swelling, with fat of šamUKUŠ-RIM and fine-ground flour, bind on, AM. 73, 1, i, 22 (dup. KAR. 192, 17): pound alone, apply, KAR. 192, 2, 26.*

(g) Šaruru ša šamUKUŠ-RIM, the capsule (?), stomach (?), dry †, probably drink (*Kū. ii, ii, 15*).

(h) "Stone" of šamUKUŠ-RIM (perhaps the stick-opium).

Ext.: Swelling, †, poultice, AM. 15, 3, 5 (JRAS. 1937, 281). Head, after washing with various drugs, bray alone, anoint mixed with cedar oil, KAR. 202, 46. (A curious comparison is made in AM. 16, 3, 4: "If ditto, 'red stone' which is like bulali") to anoint eyes. Bulalu is the equivalent for šamirrû in Šubari (p. 223), and may be connected with the Heb. bálal "to confuse" (from its effects), or the Arab. bilāl "milk", on account of its milky juice.¹

(i) zid, powder: *Ext., Swelling, †, bind on, AM. 74, i, ii, 13: alone in ḫimetu-ghee, anoint, KAR. 192, 2, 21: †, ib. 39.*

(j) Inbu, fruit; *Ext.: Eyes, †, AM. 8, 1, 7: alone (?), uncertain, AM. 13, 6, 20. Sickness on body, †, apply, AM. 44, 1, ii, 18.*

*Int.: "Fruit of poppy before they have massed it"² alone dry, bray, drink, in beer ("when a man eats bread, drinks beer, and his stomach burns, is inflamed", and "when a man eats bread, drinks beer, and his stomach burns, his urine is stopped"), AM. 48, 1, 8, and 11 + 78, 3, 5, and 8, RA. 1929, 79 (both cases are apparently described as UD-DA-DI-DI, which is difficult to reconcile with DACG. 22). Landsberger (ZA. 1934, 161) translates GE. X, iii, 6, sar-ba u UD-DA as "Nässe und Durre"). Stomachic (gall), drink with galbanum and mustard in oil (and iarru, he will vomit), Kū. iii, iii, 2. Note also the use of the Semitic equivalent of šamUKUŠ-RIM, irrû, in MT.: šamIrrû: *Ext.: †, 2 shekels of šamir-ru-u boiled in beer, applied to the (sick) place, KAR. 187, 8. Bruise, †, poultice (šamir-ri-e), AM. 79, 1, iv, 17.**

Int.: Stomach sick (maruṣ), drink a-ar-ti ir-ri-e alone drink in kurunnu-beer, KUB. iv, No. 49, ii, 1.

We can now turn to the various synonyms and bye-names for šamirrû, šamararu, about which, I think, as "opium" and "poppy" there can be little doubt.

¹ Bulalu is also used of šamankinute (p. 234).

² RA. 1929, 73, 79, uktappitu.

(a) *šamŠamu* DIR (*sámu*) "the red plant", or "drug", referring probably not to the red poppy itself, but to the red-brown opium as it is massed in small sticks (*cf.* under *elpitu*, p. 9).

(b) "Lion-fat"; "fat of a lion which has died while copulating," "fat of a black dog which has died while fighting": "fat of mankind" (with a curious equivalent *šamUKUŠ-RIM-UŠ* (?) ("male (?)") (p. 223)), which are all synonymous with the simple "fat of *šamUKUŠ-RIM*", with the traditional alchemists' secrecy about them. This is, of course, the milky juice of the poppy-capsules (P. 827). (On *šamlipî erišti* and the *šultu*-group, see p. 148.)

(c) *šamBulalu*, the drug which "confuses", p. 226.

(d) *šamAŠ-DUG-GA*, *šammi arrati tamî* "drug for laying a curse", probably representing a play on the word *arâru* "to curse" (the root of our *šamararu*, *irru*), as also occurs in the pun in the *Maglû*-passage quoted above, to which the Arabic term "the cursed tree" supposed to be hashish (*Qurân*, xvii, 62, A. R. Neligan, *The Opium Question*, 82). Indeed, we might almost see a parallel (but perhaps only to the ear alone) of the Syriac *mamîthâ* "poppy" and the Assyrian *mamit* "tabu". Then, again, in Num. v, 11 ff., the water which the accused woman must drink is called in Hebrew *mê ham-mârîm ha-me'ârêrîm* "the bitter, accursed waters" is curiously paralleled by (a) our *šamirru* from *arâru* "to curse", and (b) the equivalence *šamUKUŠ-RIM* = *šamšamu marru* "the bitter drug" (see p. 223, n. 15). For the origin of the connection of a narcotic or poison connected with *arâru*, we must seek a very primitive meaning in the word "to curse".

Frank's ingenious comparison of the Phœnician ἀσκαουκαυ, *pastinaca*, Diosc. iii, 73, *ZA*. 1910, 171, with *šamAŠ-KA-GA* (*šamAŠ-DUG-GA*) is untenable.

(e) *šamPA-PA-PA*, *šamarat araru* "the tops of the poppy", must presumably be the capsules. Can (PA) PA-PA be the origin of the word papaver?

(f) *šama-a-ba* SA "enemy of muscles" may refer to the narcotic powers of the opium.

(g) *šamHanzibatu*, like the plant *šamhandabtu* (see Pl. 39, K. 8287, 6 and 8) is apparently a quadrilateral, built up, in this case, of *han* + *zibatu*, and in the latter similarly with *han* + *dabtu*. The former suggests the Syr. *qâtel dêbhâ* "wolf-killer", or *hâneq dêbhâ* "wolf-strangler", aconite, the *han* being possibly from *hanû* "press on" (but not satisfactory), and the *zibatu* from *zibu* "wolf".

In any case it is unnecessary to make it equivalent to "*šamhanzilatu*", a non-existent Assyrian word for the Arab. *hanzal* "colocynth".

(g) *šamna-at* . . . , uncertain.

(h) *šamNAM-TIL-LA* "plant of life", fairly frequent, and perhaps Adad-nirari iii refers to it (1 R. 35, 1, 2) "whose shepherding like *šamTIL(TI)* he made good for the people of Assyria".

It occurs in *MT*. :

(1) *Simply*: *Ext.*: *Hand of Ishtar*, †, bind on (AŠ-su), *KAR*. 186, 33.

Int.: *Liver*, alone, ½ shekel in 10 shekels of oil, drink, *Kû*. iii, ii, 66.

Suppository, †, *AM*. 43, 1, 3: *enema, stomach* (*esilti libbi*), †, *KAR*. 57, r. 26 (see also 32).

(2) *Root*: *aphrodisiac* (?), "when a man has approached his wife and . . . towards his wife his heart is not lifted up . . .": the third

prescription has "root of $\text{šam}^{\text{NAM-TIL-LA}}$, $\text{šam}^{\text{a-ra}}$. . . , *AM.* 65, 7, 5. *Anus-trouble*, †, *AM.* 58, 9, r. 5.

Note the mention of "7 grains of $\text{šam}^{\text{NAM-TIL-LA}}$ ", †, in enema, *KAR.* 157, r. 7, the preceding receipt speaking of "7 grains of $\text{šam}^{\text{UKUŠ-RIM}}$ ", †, to be drunk.

(i) $\text{šam}^{\text{Azuma}}$, uncertain.

Here, then, we have a drug of which probably more parts are used than any other simple plant in *MT.*: simply, seed, še-RŪ (shoot), root, fat, *PA* (tops), *šaruru* (capsule?), "stone" (whatever this may be), powder, fruit. Its use is for eyes, feet, head and temples, stomach, swelling (common) externally; and stomach (frequently), urinary trouble, and in pregnancy internally; and as suppository in the anus. These coincide exactly with the use of the poppy-drugs: apart from its ordinary use as an internal anodyne, especially in its use in genito-urinary diseases, irritability of the bladder or uterus, and in the passage of gall-stones (*BMP.* No. 18), and externally "the decoction of poppy-capsules is a common anodyne and demulcent fomentation when applied hot to inflamed parts, bruises, sprains, and other painful affections" (*ib.*). Indeed, if certain sculptures explained by Speleers (*Extr. du Bull. des Musées Royaux*, No. 6, 1938, 122 ff.) represent a figure holding a three-headed poppy, with its capsules (upside down, so that the seed of the ripe capsule would certainly fall out), and have a religious significance, they may perhaps explain $\text{šam}^{\text{ÁŠ-DUG-GA}}$.

With the introductory groups $\text{šam}^{\text{UKUŠ-RIM}}$ "capsule of the calyx", i.e. poppy-capsule, and $\text{šam}^{\text{mārat egli}}$ "daughter of the field", we can continue with $\text{šam}^{\text{kanašū}}$ as the opium proper, in the section following the above:—

(4) *Pl.* 22, K. 267, viii-vii, 42 ff. :—

$\text{šam}^{\text{a-du-ma-tū}}$	$\text{šam}^{\text{ka-na-šu-u}}$ ina šat marru-tum
$\text{šam}^{\text{ka-na-šu-u}}$	tam-šil $\text{šam}^{\text{NAM-TAR}}$
$\text{arē}^{\text{pl.}}\text{-šu}$ $\text{šihrūti}^{\text{pl.}}$ $\text{sinnišāti}^{\text{pl.}}$ ka-zi-ri i $\text{šū}^{\text{pl.}}$	
45. GÁN-ZI-ŠAR	$\text{šam}^{\text{ka-na-šu-u}}$
zir GÁN-ZI-ŠAR	zir šam „
$\text{šam}^{\text{GAN-ZI-ú}}$	$\text{šam}^{\text{šar-ma-du}}$
ga-mul GÁN-ZI	$\text{šam}^{\text{šar-ma-du}}$
$\text{šam}^{\text{GUR}_5\text{-UŠ}}$	a-šar-ma-du
$\text{šam}^{\text{BAR-GUR}_5\text{-UŠ}}$	šam „
50. $\text{šam}^{\text{ka-su-u}}$	šam „

For the first line cf. *Mat.* 86, 12-10, 5, GÁN-Z[I]-ŠAR = ka-n[a]-šu-u = a-da-ma-[tu]. The first three lines appear to be duplicated in 108860, iv, 52-4 (*CT.* xxxvii, pl. 32, mutilated). As these groups follow the two concerned with the poppy (except that another small group, $\text{šam}^{\text{UKUŠ-TI-GIL-LA}}$, colocynth, has been interpolated between the different groups for the poppy), we should here weigh the evidence for the possible connection with opium or other narcotics.

"There are four varieties of opium poppy. Two of them have white flowers and yellow or white seeds, one has red flowers and seeds, one purple flowers and seeds . . . In Persia the variety most cultivated is the white, *Papaver somniferum* L. var. *album*" (Neligan, *The Opium Question*, 12). *P. somniferum* occurs in Syria (petals white or rose-coloured, *FP.*² i, 36), nor must the red poppy, so common in the Mesopotamian fields, be forgotten. (For the numerous species of poppy see *FP.*² i, 32; for a picture of the opium-poppy in Turkey, see *EB.* xith ed., xx, 133. For a description of opium-gathering see Rauwolff, 115.)

"The cultivation of the poppy yields several distinct and paying substances. These are (1) the inspissated sap of the green capsules—crude opium, which exudes therefrom to dry spontaneously; (2) the moisture and soluble substances which drain from the opium, known as *pasewa*; (3) the poppy petals; (4) the 'trash' or powder prepared from the leaves, dried stems, etc. (this is used in packing the opium *CPI.* 856); (5) the capsules; and (6) the oil-seed" (*CPI.* 846, 854). The seeds of poppy are said to have no narcotic effects (*CPI.* 860).

^{šam}*Adumatu* must be "the Red Drug", cognate to the Heb. *'adhmônâ*, the ruddiness of Esau; it also = *IM-GÜN-NU*, orpiment (*DAGG.* 47, 52). I was wrong in *AH.* 43 about *šat marra-tum* (or *marru-tum*), in reading it ^{šam}*Marra-tum* "the bitter land", i.e. the Persian Gulf (*nâr marratum*); the word *šat* is probably the same as in *šat muši*, *šat urri* "period of night, period of morning". In other words, we have "Red Drug" = ^{šam}*kanašû*, in the bitter "period", i.e. when it has become bitter. The opium of Asia Minor is reddish or chestnut-brown, while the Persian from Trebizond is light brown, somewhat reddish (*BMP.* no. 18). For the bitterness see p. 223, n. 15.

^{šam}*Kanašû* is obviously a loan-word from the Sumerian *GÁN-ZI-ŠAR*, the latter word occurring in the longer group ^{šam}*GÁN-ZI-GÜN-NU* (*Cannabis*). *GÁN-ZI* literally would mean "stealer of the soul", and *GÜN-NU* "twisted, woven" (p. 221), i.e. hemp, in the longer group, and consequently we may see in *GÁN-ZI-ŠAR* as the "plant which steals away the soul" simply a word for narcotic, more specifically the opium.¹ Indeed, we find in l. 43 ^{šam}*kanašû* compared to *NAM-TAR*, i.e. the *NAM-TAR* plant, the mandrake, another narcotic.

P. 228, l. 44 "its *PA* (tops) young, tender (?), have juice" is exactly the case, the green capsules exuding the crude opium (for this phrase cf. the ^{šam}*naniqu*, p. 318).

The group in ll. 47-51 is similar. The word ^{šam}*GÁN-ZI-û* is probably the same as *kanašû*; its equivalent *šarmadu* is curiously like the Syr. *semâdhra* "flower". *Gamul* (*GA-MUL*) *GÁN-ZI* may perhaps be the same as the Syr. *qemallâ* "sweepings, *quisquiliæ*", suggesting the "shireh" opium or dross, which is the burnt residue left in the bowl of the pipe after smoking, and is habitually collected and smoked again (Neligan, *op. cit.* 18), or perhaps the "trash" (above).

¹ If we are to see in the Indian *gañja* (*binj*) the Sumerian *GÁN-ZI-ŠAR* "opium" rather than the ^{šam}*GÁN-ZI-GÜN-NU* "Cannabis", we must postulate a more general use of the word for *binj*, which in Palestine is applied to the *Hyoscyamus* (*FP.*² ii, 262). Sprengel, *Diosc.* ii, 601, quotes Bocchart as seeing *binj* in the Phœn. *gingan* of Apuleius. Cf. *kanašuttum* *ŠAR* or *kanašatum* *ŠAR* (*MB.* 61).

^{šam}Kasû is the word for "rose" (p. 194), curiously used here, and suggesting a similarity to the Arab. *ward* "rose" used for any flower.

E. ^{šam}GUR₅, *šakiru*, *Hyoscyamus niger* L., henbane.

^{šam}GUR₅-UŠ, *ašarmadu*.

CT. xi, 46, 37:—

ŠA-KI-RA | ^{šam}GUR₅ | ú-šá-giš-gal-la-ku-gu-ga-k[u | ša-ki-ru].

(For the equivalents of ^{šam}GUR₅-UŠ see p. 228.)

^{šam}GUR₅ occurs thus in MT:—

(1) *Simply*: *Ext.*: *Tooth*, while green, alone (?), *AM.* 47, 4, 5. *Stomach*, †, poultice, *Kü.* ii, i, 33. *Bruise*, †, *AM.* 76, 3, 3. "Muscle of temples," †, prob. *ext.*, *AM.* 19, 1, 4. *Swelling*, alone, dry, pound, poultice with "barley-dust", *KAR.* 192, i, 24. When a woman's *abunnatu* (sexual part) is relaxed, after childbirth, pour into it with four others, *KAR.* 195, iv, 30. *Virility*, †, *ext.*, *Liebesz.* 51, 8.

Int.: *Jaundice* (?), †, drink (?) in beer, *Kü.* ii, iv, 14. *Stomach*, with *rišE-LI-PAR*, drink in beer and *iarrum*, *Kü.* ii, i, 45. *Sorcery*, †, drink in . . . or in beer, *AM.* 48, 2, 7: *uncertain*, to assuage some "sorcery" which he has eaten or drunk (?), †, [drink ?] in beer, *AM.* 87, 5, 12.

(2) *Seed*: *Ext.*: *Lungs*, †, poultice, *AM.* 54, 1, 7. *Itching on feet*, †, poultice, *AM.* 74, iii, 9.

Int.: to stay (?) *menses*, with laurel-seed and thistle-seed in beer, drink, *KAR.* 194, iv, 8.

Note that in order to prevent sorcery from approaching a man's house, spread (*tetimir*) ^{šam}DIL-BAT, ^{šam}GUR₅, UŠ-SA-beer, sulphur . . . on the outer door and hinge, *KAR.* 298, r. 43.

(3) *Root*: *Ext.*: anoint, bind (AŠ-su), and put on neck, †, *KAR.* 70, 36 (*Liebesz.* 30, 36). Against AN-TA-ŠUB-BA, *etc.*, †, bind on (AŠ-su) *KAR.* 186, r. 30.

(4) PA (tops): *Ext.*: unknown disease, †, poultice, *AM.* 50, 5, 4.

(b) ^{šam}GUR₅-UŠ:—

(1) *Simply*: *Ext.*: *Teeth*, †, *AM.* 78, 1, 29: decayed teeth, alone (*Vade-mecum*) *Pl.* 10, i, 9, *dup.* Meek, *RA.* 1920, 181, S. 1701, *etc.* (*JRAS.* 1934, 773).

(2) *Seed*: *Ext.*: *Temples*, †, bray, anoint in oil, *AM.* 103, 21.

(3) *Root*: *Ext.*: Against AN-TA-ŠUB, †, bind (AŠ-su), *KAR.* 186, r. 17. Text mutilated, but prob. root of ^{šam}G[UR₅-U]Š which in its uprooting the sun has not seen, apply alone to the temples, for eyes, *AM.* 14, 5, 9.

The following is to be added to p. 228:—

^{iš} BAR-GUR ₅ -UŠ	|	šar-ma-[du]
^{iš} GUR ₅ -UŠ	|	" "
^{iš} GUR ₅ -UŠ	|	ki-šit-[tu]
[^{iš}] . . GUR ₅ -UŠ	|	ku-ši- . . .
. . . ŠAG-GUR ₅ -UŠ	|	kur-ši-is- . .

ii, R. 46, 72-6.

Ebeling suggested that *šakiru* = Aram. *šakrônâ* (E. xiv, 29, n. 1). Certainly henbane fits very well. "Šakrônâ gehört zu den ältesten bekannten aram. Pflanzennamen, da schon Josephus, *Arch.* iii, 17, 6 sie beschreibt," *FJ.* iii, 359.

XIII

MISCELLANEOUS UNCERTAIN PLANTS

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A. *šamAprušu* (spelt usually *šamáp-ru-ša* (or *šá*, or *šú*, or *še*), but once *šamap-ru-š[a]*, perhaps *Siderites* sp.

This occurs thus in *MT.* :

(1) *Simply*: *ext.*: Temples, bray, mix alone in oil, add scammony-gum, bind on, *AM.* 20, 1, 10, *dup. CT.* xxiii, 40, 23 (*šamáp-ru-ša* (v. *ša*). *Hand of Ghost*, †, bind temples, *AM.* 102, 26 (*šamáp-ru-ša*). *Feet and hands*, bathe, in *šamáb-ru-ša* and *zir kul-ku-la-ni*, followed in l. 11 by a mention of *riqkul-ku-la-ni* and *riqLI* (*ABL.* 450, 8). *Swelling*, †, poultice, *AM.* 100, 3, 13 : uncertain use, *KAR.* 192, ii, 28. *Blow (mišitti)*, †, poultice, *AM.* 79, 1, 7. Prob. some *ext.* affection of the skin, †, poultice, *AM.* 52, 3, 4. Anoint in oil, †, *AM.* 94, 2, ii, 13 (*šamáp-ru-ša* : in oil, † (?) (*Aš-su*, *KAR.* 205, 1). Long and varied prescription, †, *AM.* 22, 2, 13 (*šamap-ru-šú*). For *TAB-UD-DA*, bray, anoint alone in oil, *KAR.* 203, 51 (*šamáp-ru-š[a]*).

(2) *Seed*: Prob. swelling with *šamsiḥu* (*Artemisia*) and *šamarzallu* (*Cratægus*) anoint, *AM.* 73, 1, ii, 4.

(3) *zid* (powder): Blains (*šigati*) with 45 others, bind on, *KAR.* 192, r. ii, 53 (*šamáp-ru-še*).

There would appear to be no doubt that the reading is *šamap(b)rušu* and not *šamlidrušu*, and hence the Persian *apruz* may be cognate (استان

اُروز, a garden of *apruz*), Kestron, *Siderites* (*FJ.* ii, 72 : *FP.*² ii, 373). It grows in Mesopotamia (Ainsworth, *Res.* 34), and its ancient use for staunching blood and healing wounds is not remote from its frequent *ext.* use in *MT.* A "species frequently grown in gardens is the Syrian or sage-leaved iron-wort (*S. syriaca*)" (*PC.* xxi, 1841, 491).

B. *šamLÚ-GÀL-LU* (= *akušimanu* (?)) : *šamšUR-šUR*.

Pl. 19, K. 4216, viii-vii, 1-2 :

.....
šamšUR-šUR[R]	.....
šamLÚ-GÀL-LU	šama-ku-[ši-ma-nu] (?) ¹

(a) *šamLÚ-GÀL-LU* :

Cf. AM. 104, 32 : 2 INIM-INIM-MA SAK-KI-DIB-BA *ina eli taq-ši-ri šá šamLÚ-GÀL-LU* : "Two prayers for an affection of the temples over a bundle of *LÚ-GÀL-LU*-plant," but it is not clear what the procedure after this is. The plant is used *ext.*, †, *AM.* 88, 2, r. 2 ; it is used to rub on with "the blood of a black serpent" (*Ricinus*, p. 130), with black and yellow sulphur and cedar blood for the attack of a ghost, *KAR.* 56, 3, and similarly, *ib.* 8, and to rub on horses, †, in the purification of a stable, *KAR.* 91, r. 11. Its use with *Ricinus* (if this is correct) with sulphur and cedar-oil, to be rubbed on, suggests a soap.

(b) *šama-ku-ši-ma-nu* = *šamsah-la-a-nu* (wild cress, p. 55) *VAT.* 9000, part dupl. of K. 4185, *pl.* 26. It is to be drunk with 36 others for some urinary trouble, *KAR.* 193, 10 (*šamakušimana*).

¹ 108860, *CT.* xxxvii, 28. I, 21-2 gives a plant *šamšUR-šUR* twice. The reading *a-ku-[ši-ma-nu]* is not certain ; it might be *a-lu* . . . Note *šamLU-a-nu* in *Luck.* i, 215.

C. ^{šam}GI-RIM-GI-SUK, *ankinute*, perhaps *Nelumbo nucifera* Gärtn.

Pl. 27, 82-5-22, 1777¹: Pl. 32, S. 1328; Pl. 39, K. 10126 + 79-7-8, 350:

		2
[^{šam} GI-RIM-GIŠ]-GI-SUK		^{šam} an-ki-nu-te ³
[^{šam}] . . . A(?) -GI-SUK		^{šam} „
[^{šam}] . . . GAR(?) -BÚN-NA ⁴		^{šam} „
^{šam} GI-RIM-GIŠ ⁵ -GI-SUK		^{šam} „
^{šam} bu-la-lu		^{šam} „ ina Šú-ba-ri
^{šam} a-a-ár ku-bu-ut šá šádî(i)		^{šam} „ kima lam-me ^{2 6}

Since the forms *ankinute*, *ankinuti*, and *ankinudi* all occur, there is apparently no doubt about the transliteration.

This occurs thus in *MT.*:

Simply, always: Ext.: Temples, †, anoint in oil, *AM.* 103, 21. *Hands and Feet*, †, ext., *AM.* 98, 3, 16. Feet (oil of cedar, ^{riq}kuḫru, and ^{šam}ankinutim mix, anoint), *AM.* 74, 1, iii, 7: sim. to preceding, *AM.* 75, 1, iv, 4. Uncertain, †, anoint in oil, *AM.* 94, 2, ii, 12. *Hand of Ghost*, †, anoint in oil, wear on neck as amulet, *AM.* 95, 2, ii, 9 (dup. *KAR.* 184, 19).

Int.: Strangury, †, drink either in strong wine or . . . , *AM.* 59, 1, 37. To stay *fluid in womb*, †, drink in beer, *KAR.* 194, iv, 36. [Hand] of Ghost, †, drink, *AM.* 14, 5. Uncertain use, *lungs (?)*, *AM.* 45, 1, 4.

Uncertain use, *lungs (?)*, *AM.* 45, 1, 4.

Probably from its name “calyx of the pool”, and the Aramaic *guttin*, *qitnîn*, *Nelumbo nucifera* Gärtn., the similarity of the Assyrian *ankinuti* being obvious. The *Nelumbiaceæ* are associated by some with the *Nymphaeaceæ* or water-lilies, which they certainly resemble in appearance (*PC.* xvi, 1840, 140). They are used for many diseases (*IMP.* 1, 75), and occur in Syria-Palestine, *FP.*² i, 30. The best known is said to be the *N. speciosum* Willd., Middle Asia and Egypt: “ihre stärkereichen Rhizome, sowie die haselnussgrossen Früchte (ägyptische Bohnen) werden roh und gekocht gegessen” (*MPB.* ii, 600): “its nuts are supposed to have been the sacred bean of Pythagoras; its fleshy stems are used as food by the poorer inhabitants of China” (*PC. ib.* 141). Particularly interesting is the name ^{šam}a-a-ár ku-bu-ut šá šádî(i) (“sheen, colour, of *kubut* of the mountains”), “like an acorn” (*lamme*, p. 247), i.e. bean or hazel-nut size.

- D. 1. ^{šam}Ariḫu.
 2. ^{šam}Puḫpuḫu.
 3. ^{šam}Gānu.

In *VAT.* 9000 we have:

¹ Perhaps part of K. 4354, Pl. 18.

² Line omitted on S. 1328.

³ S. 1328 *ii*.

⁴ S. 1328 . . . H.A.

⁵ 82-5-22, 1777, omits.

⁶ Line omitted on 82-5-22, 1777.

(a) [šamšá-mi a-mu-ri]-qa-nu	šambu-ra-šu
(b) [šamšá-mi aḥ]-ḥa-zu	šam ¹ nab-ru-qu
(c) [šamšá-mi] sa-ma-ni	šamša-su-un-tú
(d) [šamšá-mi] šur-di-e	šama-ri-ḥu
(e) [šamšá]-mi ḥimiṭ urri ¹	šamla-ḥa-gu
(f) [šamšá]-mi šepa ^{II} ŠAR ^{pl}	šamša-da-nu
(g) [šam]šá-mi BIL lib-bi	šamga-a-nu
(h) [šam]pu-uh-pu-ḥu	šam ,,
(i) šama-ri-ḥu	šam ,,
(j) šamga-a-nu	šamḥi-la-ba-nu
(k) šamḥi-la-ba-nu šá šadi(i)	šam zi-aḥ (= nasah) ŠI (mārti)

and *Mat.* 88, 4, 1-5 :

šam	MAḤ	.....
šam ¹ pu-uh-pu-ḥu		šam ¹
šamme-ši(?) šam-ri		.....
... la mur di		šam
... ši ša ni		šam

1. šam¹Ariḥu, a drug for šurdî, possibly, but not probably, to be connected with the diagnosis in *AM.* 51, 4, 5 : "If a man who is sick of šur-du ša aŠamaš the thirtieth day 7 and 7 pu-ut-ri i[k(?)]- . . .," which might mean an attack of sun-heat, either sunstroke, or (since šiggatu "blains" or sim. is in the next prescription) merely sunburn. šam¹Ariḥu is used in *MT.* internally for stomach-trouble (heartburn) when the patient is unable to rest by day or night, his limbs being "poured out"; he has eaten or drunk some "sorcery", for which bray šam¹ariḥu alone, drink in grape-juice, and he shall evacuate, *AM.* 48, 2, 3 (paralleled by a similar receipt with šam¹matqu in grape-juice, *ib.* l. 5). As it would appear to be a purge, šurdû is probably to be explained as from ridû "drive".

2. šam¹Puḥpuḥu is used in *MT.* thus: a small quantity, prob. 1 carat . . . [šam¹pu]-uh-pu-ḥu, *AM.* 91, 6, 4. Perhaps . . . -pu-ḥi in oil on wool, *AM.* 78, 2, 7. In *BM.* 122654 (dup. *KAR.* 203, i, 35, it is given as šam irri marši ("a drug for sick entrails"), bray, drink in wine.

In the *VM.* (*Pl.* 42, K. 274, 24 : Meek, *RA.* 1920, 179 : *Mat.* 88, ii, 8) :

[šam¹](iṣ)pu-uh-pu-ḥu² | ina mu-taq-pu

šam¹MAḤ, a plant which occurs in the same register, is given on *KAR.* 203, iv, 55 (dup. *Pl.* 37, Rm. 357, 6) as šam ḥi-TAR-ḥu "a drug for . . .". An omen is drawn from its occurrence in plenty (a-tar) (like šammê^{pl} in plenty), with the result of "destruction of cattle" (*KAR.* 203, r. iv, 40, 41 (cf. *TR.* ii, 59, K. 2882, 2-9, for the use of a-tir in similar circumstances).)

3. šam¹Gānu is paralleled in its use for coughs by šam¹zir iṣbīnu (seed of

¹ TAB-UD-DA. (Cf. *Pl.* 31, K. 8846, obv. 1-5, . . . sepá^{II} BIL . . . [šam¹]ga-ā-n[u] . . . , [šam¹]a-ri-[ḥu] . . . , [šam¹ḥi]-la-pa-nu . . .).

² The reading -ri of Matouš seems a manifest error.

tamarisk): *šamga-a-nu* | *šam ha-ḥi ina šamni ḥal-ši* | *NU pa-tan ikaš-šu lu ina šikari išatti* (*KAR.* 203, iv, 44, which surely must be compared to *ib.* 34, [*šam*] *ga-a-nu šam su-[a-lim ina samni ḥal]-ši NU pa-tan | lišan-šu išabat(bat) išatti*, i.e. it is prescribed to be drunk for cough (with slight variation in each) in refined oil: also *ib.* vi-v, 28 (dup. *Pl.* 36, K. 4687 + *Rm.* ii, 412, 12, and *Pl.* 43, S. 60, 6) *šamga-a-nu* | *šam BIL libbi ša zi | tazak ina šamni tapašaš*, rub on in oil to remove "fire of the stomach" (parallel to the use of *šamkaran šelibi* (*cf. l. (g), p. 235*).

The species "*šamḥilabanu* of the mountains" is for removing bile (line *k*, *p. 235*). [Here the Author inserted a rough note, showing that he intended to compare *ḥilabanu* with an Aram. form *ḥilbānā* quoted from *FJ.* I, 221, said to mean "ivy". For the modern medical uses of ivy he quoted *HS.* 202: the berries of the ivy for rheumatism, fresh ivy leaves for corns, ivy gum for hollow teeth, and uses in the treatment of the eyes and of headache.]

E. *šAšdanu*, unknown.

It occurs in *MT.* thus:

For sick anus, while green, mix with fat, apply to anus, *Pl.* 30, S. 698, 14: *KAR.* 203, r. iv-vi, 7.

F. *šamBukanu* (*sirkannu*).

VAT. 9000 gives:

<i>šam</i> bu(<i>sir</i>)-ka-nu	<i>šam</i> si-iḥ-pu
<i>šam</i> gu-ma-nu	<i>šam</i> "
<i>šam</i> līb-bu AN-NIN-PÍŠ	<i>šam</i> qu-qu-bi-nu

In *VM.* we get *Mat.* 88, i, 23-5: *Pl.* 28, K. 4140, A, 6 ff.:

.....	[<i>ina</i>] līb AN-NIN-PÍŠ ¹
.....	[<i>ina</i>] zibbat a-da-ri ²
.....	[<i>ina</i>] išid bu(<i>sir</i>)-ka-ni ⁴

In *MT.* *šam*bu(*sir*)-ka-ni is used, probably to dissolve stone in the kidney, *AM.* 39, 6, 5. *Išid bukanu* (*sirkannu*) is an animal of the lower orders (Landsberger, *Fauna*, no. 248).

G. 1. *šamElkidu*.

2. *šamNagaḥu*.

3. *šamKusimu*.

4. *šamBuklu*.

VAT. 9000: (dup. *Pl.* 26, K. 5440, B) gives:

¹ K. 4140, A, zibbat PÍŠ.QA.GAZ.NITÁ.

² K. 4140, A, *rim*, and repeats this line.

³ K. 4140, A, has no line.

⁴ K. 4140, A, i-šid bu(-*sir*)-ka-nu.

[šam] -RA	šame-ki-du
[šam _{GA} (?)]-HAR	šam „ 1
[šam _{GA}]-HAR	šamna-ga-hu
šam _{GA} -RIN	šam „ 2
šam _{KU} -si-mu	šam „
šam _{KU} -si-mu	šamšá-aš-bu-tú
šam _{PI} -na-ru	šam „
šam „	šamka-bu(?) -u
šam _{PI} -nir-tu	šamkar-ru-hu
šam _{BU} -uk-lu	šamšá-na- . . -[d]i-e

H. 1. šam_{EL}-KUL-LA.

2. šam_{MUH}-KUL-LA.

Note that šam_{EL}-KUL-LA, which we should naturally have expected to be the same as šam_{MUH}-KUL-LA (i.e. šameli-KUL-LA) occurs in three prescriptions along with the latter in *MT*. The various occurrences of the different forms in *MT*. are as follow:

(a) šam_{EL}-KUL-LA: three instances with šam_{MUH}-KUL-LA in the same prescription: †, anoint, *AM*. 97, 4, 11: rub horses, †, *KAR*. 92, r. 11. *Strangury*, †, *AM*. 59, 1, 38. Once with šam_{IR}-KUL-LA, †, for sorcery, drink in wine or beer, *AM*. 89, 1, 1. Without either, *Hand of Ghost*, †, anoint, *AM*. 95, 2, 10: 97, 4, 15. Scorpion-sting, †, anoint, *AM*. 91, 1, r. 7.

(b) šam_{MUH}-KUL-LA (besides the three instances quoted above): anoint, †, *AM*. 103, 1, 21. *Hand of Ghost*, †, 97, 4, 12. When saliva is not stopped in the mouth, with šam_{mastakal} (etc. (?)), drink in kurunnu-beer, *AM*. 31, 4, 15 (see šamili-KUL-LA below). For weak hair, †, wear (?) on neck, *CT*. xxiii, 36, 55. Also along with šam_{IR}-KUL-LA, loins, †, uncertain use, *AM*. 31, 1, 7. Uncertain, †, *AM*. 88, 1, 3.

(Seed) [*Lungs*], †, uncertain use, *AM*. 83, 1, 19. A red kind, for *Ghost*, †, anoint in oil (finger pricking him), *AM*. 14, 5, 2.

(c) šame-li-GUL-LA: *Hand of Ghost*, †, drink, *AM*. 14, 5, 4: šami-li-KUL-LA, "when a man's saliva comes plentifully and is not stopped," †, eat, drink, Ebeling-Unger, *AfK*. 1, 1923, 23, 10 (see an entry under šam_{MUH}-KUL-LA above).

(d) šam_{AN}-(=il)-GUL-LA; *Lungs*, †, anoint, *AM*. 45, 1, 10.

(e) šam_{AN}=(il)-HUL-LA; "allows no sorcery," Thureau-Dangin, *RA*. 1921, 165, 21.

From the above it would seem that šam_{MUH}-KUL-LA is the same as šame-li-GUL-LA (because of its Assyrian translation for the first word), and again, as šami-li-KUL-LA, since the respective prescriptions in which this latter occurs with it are practically the same; and probably the same as šam_{AN}=(il)-GUL-LA. We have, however, three distinct forms in šam_{MUH}-KUL-LA, šam_{EL}-KUL-LA, and šam_{IR}-KUL-LA. šam_{AN}-HUL-LA is an uncertain instance.

Certain resemblances in the employment of these in *MT*. with šam_{EL} or šamarzallu suggest a connection, particularly as one instance of a red kind of šam_{MUH}-KUL-LA is given (cf. p. 319, where two species of

¹ K. 5440, B may be šamqa- . . .

² K. 5440, B.

za'rūr are mentioned, a red and a yellow). But *šam*arzalla occurs in the same prescription as *šam*_{EL-KUL-LA} (*AM.* 95, 2, ii, 10), and *šam*_{EL} with *šam*_{EL-KUL-LA} and *šam*_{MUH-KUL-LA} (*KAR.* 91, r. 11), so that the four are certainly distinct.

I. *šam*Habšallurhu, unknown.

Pl. 31, K. 8249 (+ *Pl.* 40, 82-5-22, 576, which gives nothing): dup. *VAT.* 9000:

<i>šambe-la qur-di</i> ¹	<i>šam</i> hab-šal-lu-ur-hu
<i>šam</i> a-rit ² <i>šamni</i>	<i>šam</i> "
<i>šam</i> a-lid <i>šamni</i>	<i>šam</i> "
<i>šam</i> hab-šal-lu-ur-hu	<i>šam</i> ul-lu-lu šā šamē(e) ³

"Warrior's slingstone," "giving birth to oil," "shooting oil," "cleanser of heaven," would appear to be the meaning of the synonyms of *ḫabšallurhu*. Olive is a possible suggestion, but very unlikely.

J. *šam*_{KA-A-AB-BA}, *imbū tamtim*.

Pl. 25, K. 4398, i-ii, 2-6, gives:

<i>šam</i> šā-mi ki-rib tam-tim	<i>šam</i> im-bu-u tam-tim
<i>šam</i> _{KA-A-AB-BA}	<i>šam</i> im-bu-u tam-tim
<i>šam</i> _{A-AB-BA} rapaštu(tu)	<i>KA-A-AB-BA</i>
<i>šam</i> _{KU-SA A-AB-BA} ⁴	<i>šam</i> kakkab tam-tim
<i>šam</i> _{KU-SA} ia-a-me ⁴	<i>šam</i> kakkab tam-tim

Smith, *CT.* xxxvii, 108859, ii, 33:

A-AB-BA rapaštum(tum) | *KA-[A-AB-BA]*

Mat. 88, 5, 12-13:

<i>šam</i> a-ma-ši-ú(?)	... -na- ..
<i>šam</i> ku-si ia-me	... tam-ti

*šam*_{KA-A-AB-BA} (*imbū tamtim*) is found in *MT.* thus:

Simply: ext.: Temples, †, bind on, *AM.* 4, 6, 2: 20, 1, 15, dup. *CT.* xxiii, 40, 28 + *AM.* 15, 2 (*AJSL.* 1938): *AM.* 102, 41: 103, 15 (in cedar-blood): †, anoint, *AM.* 103, 21: put on neck in purse, †, *AM.* 4, 6, 7 (?) (*cf.* *KAR.* 182, r. 25). *Head*, †, poultice, *AM.* 93, 1, 15. *Eyes*, probably, †, *AM.* 14, 3, 3. *Stomach*, †, anoint in oil, *AM.* 52, 4, 6. *Foot-sole*, †, anoint in oil, *AM.* 75, 1, iv, 25 + 15, 3, r. 4. *Hand of Ghost* (fingers pricking), †, anoint in oil, *AM.* 14, 5, 21: 93, 1, 7: 97, 4, 15: †, anoint in cedar-blood, *AM.* 93, 1, 2 (and in cedar-oil, *AM.* 94, 2, ii, 12): as salve, †, *AM.* 94, 2, ii, 15.

Ghost, †, prob. bind on (Aš-su), *AM.* 29, 1, 2 (+ 89, 3 + K. 2175, iv, *CT.* xxiii, 22): †, in cedar-blood anoint, *KAR.* 56, 6. Against *bennu*, alone, BM. 122654 (from Nineveh). In a charm against unpopularity, etc.,

¹ *VAT.* du.

² *VAT.* ri-id.

³ This line not on K. 8249.

⁴ *Cf.* also *šam*_{KU-SA A-AB-BA} and *šam*_{KU-SA} ia-a-me, *Pl.* 18, K. 4354, xvi-xv, 10-11: see p. 36.

with "heliotrope", hellebore, and magnetic iron-ore in various sweet oils, *AM.* 87, 1, r. 6.¹ *Scorpion-sting*, †, in cedar-oil and oil anoint, *AM.* 91, 1, r. 6. "Poison," †, in [oil] of cedar anoint, *AM.* 93, 4, 5: poultice, †, *AM.* 98, 3, 10.

Pessary: in wool alone in uterus, *KAR.* 194, iv, 15.

Fumigate: *Temples*, probably, with fir-turpentine, sumach, †, *AM.* 4, 6, 2. *Ears*, †, *AM.* 33, 1, 33, 36. "Poison of all limbs," †, dry, pound, sift, *AM.* 91, 1, 9: "poison," with black sulphur, turmeric and dry bitumen, *ib.* r. 2, *dup.* *AM.* 92, 4, r. 2. *Ghost*, lying on a patient, †, in cedar-blood, *ina* BIL (in fire (?)), *AM.* 33, 3, 14, *dup.* 82, 4, 9, and *KAR.* 182, r. 15 (*cf. ib.* 12).

Int.: *Strangury*, with ostrich-egg-shell in oil + beer, *AM.* 59, 1, 16. *Stomach*, prob. drink, in beer with ^{aban}BIR (lime) and anemone, *KAR.* 186, 4, *cf.* 6. Bruise (*dikšu*), †, [drink], *Kü.* ii, iii, 70. Uncertain use, 2 shekels of . . . A-AB-BA, *AM.* 62, 1, iv, 2.

K. ^{šam}*Kalbanu*. Unknown.

VM. Mat. 88, i, 78 (*cf. Pl.* 42, K. 274, 9), [^š]kal-ba-nu | *ina* ^ša-šu, which surely must be corrected with K. 8764, 4, *ina* ba-a-šu. Scheil, *RT.* xxxiv, iii, compared it to galbanum, but I doubt this. If it were related to various Arabic words containing the word for "dog", it should be a thorny plant: its connection with *bāšu* "sand" is difficult, and we can hardly suppose that the reference is to the sandy soil in which it grows. Again, it is not likely to be the fluff of the bulrush tops, which to-day is used in potters' clay: *bāšu* can hardly mean "clay".

L. ^šKAN HU-SI, unknown. See a prescription for Hand of Ghost, *AM.* 9477.

M. ^{šam}*Kuiātu*, unknown.

^{šam}*Kuiātu*: *VM. (Pl.* 42, K. 274, 15: K. 8764, 10, unpublished: *Mat.* 88, i, 84) gives:

^{šam}*Kuiātu* | *ina* šu-pu-u ša (v. *šá*) nári (v. *pán mēp¹*).

N. ^{šam}*LAL*, . . . -ku-la-lum.

^{šam}*LAL* occurs in *VM.* with a variant [^{šam}a]š (?), or [p]i (?), or [š]i (?), or [m]e (?), i.e. -ku-la-lum (for which Ebeling, *MAOG.* x, 1937, 2, 27, suggests *aškulahu*). *Pl.* 10, 3-4: Meek, *RA.* 1920, S. 1701, i-iii, 6, 7: *Pl.* 44, i-ii, 13, 14: *Mat.* 88, 1, 41, 42:

^{šam}*LAL* (v. . . . -ku-la-lum, as above) | *ina* kalû (yellow ochre) and also | *ina* IM-KAL-GUG (mercury) (v. (IM)-KAL *matqu* "sweet sublimate (?)").

It also occurs in vocabularies, twice in a right-hand column (*Pl.* 27, K. 4162, 4-5) above *kašî šAR* "rose", twice, and below [^{šam}hîl b]alti šadi (*Ecballium*) twice.

It occurs thus in *MT.*:

Always simply, and usually in a salve with cedar-blood, oil of cedar, or oil. Noticeable is one prescription particularly (preceding one "when

¹ Heliotrope, the flower which "presents the face", in sympathetic friendliness; hellebore against hostile influences; magnetic iron ore, used for its attractive powers (*DAG.* 85), and the various sweet oils to give a pleasant presence.

sickness comes forth on a man's body"), a salve containing ^{šam}LAL and ^{šamma} ^{šam}LAL together with others in cedar-blood, which shows that ^{šam}LAL provides a specially characteristic product (perhaps a dye?), besides that one which is merely defined by its simple name (*AM.* 52, 3, 9).

It is used frequently in a salve (always with others) against the Hand of a Ghost or sorcery; *AM.* 93, 1, 2, *dup.* of *KAR.* 56, 5 (in cedar-blood), 7 (in oil): [95, 2, 8], *dup.* of *KAR.* 184, 19 (in oil): 96, 4, 6 (in cedar-oil): 97, 4, 15 (in oil): *KAR.* 182, r. 5: probably salve, *AM.* 87, 5, 15. Most of these ingredients appear to be evil-smelling drugs.

Fumigate, against "poison", †, *AM.* 91, 1, 9.

[*Drink*] in beer, with ^{šam}GUR₅, ^{šammu} ^{sāmu} (the "red drug", with a value *Asa foetida*, p. 353), *Kü.* iii, iv, 14.

^{šam}LAL occurs also in Boissier, *Rev. Sémi.*, 1894 (K. 249), 137. Tiglath-pileser III, brought it back as tribute from Merodach-baladan of the Sea-country (*i.e.* the tidal Khor) with ^{šam}LÚ-a-nu and coloured garments (ii *R.* 67, 28). In *BRP.* iv, 37, 18 (*JRAS.* 1924, 456) ^{šam}LAL is explained as *ki-ma* ^{is}šašhūri *ina ni-rib* (?) *tam-tim a-šar šam-mu u* ^{is}GI *la ba-šu-ú ina pān mē^v uššū ina muh-hi-šū . . .* "like an apple, in the neighbourhood (?) of the sea,¹ where grass and reeds are not; coming out in front of the water, whereon (?) . . ."

O. ^{šam}Kusibu, unknown.

^{šam}Kusibu occurs *KAR.* 203, i-iii, 44, as ^{šam}ha-am-me, a drug for (?) (bray, anoint in oil). *VM.* (*Pl.* 42, K. 274, 14: K. 8764, 9 (unpublished): *Mat.* 88, 1, 83) gives ^{šam}Kusibu | *ina ga-la-lu*, *AH.* 105, nothing.

P. ^{is}MAŠ-ĦUŠ, *kal* . . . , *gi*

^{šam}MAŠ-MAŠ, esparto-grass, or similar.

Meissner, *MVAG.* 1913, 2, 29, 40 ff., gives ^{is}ĦUŠ and ^{is}MAŠ-ĦUŠ = *kal* . . . , and ^{is}MAŠ-ĦUŠ, ^{is}MAŠ, and ^{is}MAŠ-MAŠ = *gi* . . . ²

^{is}MAŠ-ĦUŠ occurs thus in *MT.* :

(1) *Simply: Ext.: Head*, after washing head in cow's urine beaten up, reduce ^{is}MAŠ-ĦUŠ, bray, shave head, and anoint (in) oil, *AM.* 3, 5, 6. *Eyes*, ^{is}MAŠ-ĦUŠ (glossed ^{is}bīnu, tamarisk), †, dry, apply to head, *AM.* 16, 1, 5. Probably baldness (or sim.), with mustard, in yeast of *kurunnu*-beer, bind on for three days after shaving (head), *CT.* xxiii, 25, 35 + *AM.* 2, 1, r. 13.

(2) *Fruit: Hand of Ghost*, †, anoint in oil, wear on neck, *AM.* 95, 2, iii, 9, *dup.* *KAR.* 184, 20, where "BAR (rind) of fruit of ^{is}MAŠ-ĦUŠ" is given instead of plain "fruit"). *Head*, †, bind on in rose-water, *CT.* xxiii, 31, 67. Uncertain, bray fruit of ^{is}MAŠ-ĦUŠ, †, give to drink, *AM.* 88, 2, r. 8.

Quantity (fruit): 10 shekels, †, head, *CT.* xxiii, 24, 14.

[*Fumigate*]: †, *AM.* 99, 3, r. 4, 10.

(3) *Root*: "When a man is full of *guraštu*" (itch in head or similar), along with root of tamarisk, *etc.*, uncertain use, *AM.* 17, 1, ii, 6.

(4) PA (tops), *AM.* 37, 4, 6 (?) (PA ^{is}MAŠ-Ħ[UŠ (?)]).

^{šam}MAŠ-MAŠ is perhaps to be read in the following lists :

¹ The doubt about *nirib* makes *tamtim* "sea" also uncertain.

² The traces in ii *R.*, 46, 69, may be *i[s]*.

Pl. 31, K. 8846 + Rm. 316, 24 ff. (restored from VAT. 9000) :

<i>šam</i> MAŠ — MAŠ (?)	.....
<i>šam</i> MAŠ — MAŠ (?)	.....
<i>šam</i> ka-na .....	.....
<i>šam</i> ša-da ú-ri	.....
<i>šam</i> sa-gal-lu iṣṣuri	.....

VAT. 9000 :

<i>šam</i> MAŠ — MAŠ (?)	.....
[<i>šam</i> .....]-nu	<i>šam</i>
<i>šam</i> GIR (?) rabû(u)	<i>šam</i> ša-[da ú-ri ?]
<i>šam</i> SU-NIGIN-NU	<i>šam</i>
<i>šam</i> sa-gal-lu-iṣṣuri	<i>šam</i> gir ₄ -ba-nu ina Šú-ba-ri

[This article was unfinished : rough notes by the Author reveal that he intended to propose as the signification of these words “esparto-grass, or similar”. He interprets *sagallu iṣṣuri* as “bird-net”, and quotes two Syriac words *šad’á*, *fibra radices*, to be compared with *šada* (ú-ri), and *ms’*, *spartum*, to be compared with MAŠ-MAŠ.]

Q. *šam*MAŠ-TAB-BA.

It occurs thus in MT. :

Always *simply* : always *ext.* or as pessary : *Eyes*, †, apply, AM. 8, 1, 17, practically dup. of Scheil, RA. 1921, 6, 4 : AM. 19, 6, 5, 7, 10. *Ears*, †, insert, KAR. 202, iv, 18. *Blains* (*šiggati*), †, bind on, AM. 32, 5, 5. *Bruise* (*dik[ši]*), †, lotion, AM. 97, 5, 4. *Ašû* (pain) seizing the patient, with heliotrope and sumach, anoint in oil, AM. 55, 8, 5, dup. 16, 4, 14 : cf. 37, 3, 4.

Pessary and suppository : *Childbirth*, †, for uterus, KAR. 195, 10. *Anus-trouble*, †, insert, KAR. 201, 11.

It would appear to be a plant with anodyne properties, perhaps poisonous. Its meaning “Twin” does not suggest anything.

R. *šam*Ši(m) guštu(ŠAR).

The variant prescription KAR. 203, iv, 61 :

*šam*šim-gu-uš-ti arqu | *šam* ditto (= *amurriqānu*) | ...

and one of my new texts from Nineveh :

*šam*ši-gu-uš-lu arqu | *šam* a-mur-ti-qa-ni | RAT ina karani šaḥti NAK

show how the word is to be read. In VM. there are two instances :

(a) Pl. 42, K. 274 + 4163, iii-iv, 2, dup. Mat. 88, i, 71

[*šam*] (*iš*)šim-gu-uš-te (v. ti) (*iš*)ŠAR | ina ku-ru-su šá mēri,

and (b) Pl. 10, r. 17, dup., Pl. 40, K. 14051, 2 : and Mat. ib. ii, 38

*iš*šim-gu-uš-ti | ina ... šú (?) alpi.

The former (a) of these suggests a connection with something of skin as part of a waterlift, the latter (b) possibly something in connection with an ox(-skin). The word, however, is not in sufficiently common use to show definitely that it is one of the ordinary tanning materials for leather : the usual way to make skin-bottles impervious is to smear them with grease (Bruce, *Travels* iv, 334, quoted Smith, DB. i, 223), or pitch

Chardin, *Voyages* iv, 75, quoted *ib.*) or, in the case of kelek-skins, pomegranate (see p. 316), or for tanning in general, acacia bark (*DB. ib.*).

If there were any question about the reading of *šim* as a determinative (where *ria* is usually read, and not *šim*), so that the word were merely *guštu*, we might see in it the Syr. *quštā*, the Skr. *kušta*, *Costus*. *FJ.*² i, 391, gives *Aucklandia Costus* Falconer as the equivalent, but cf. *CPI.* 980, *Saussurea Lappa* C. B. Clarke. The use for *amurriqanu* "jaundice", however, is hardly coincident with *Costus*, and the variant on the Nin. text, *šamši-gu-uš-tu* is definite. Moreover, there is no Sumerian equivalent marked by *ria*.

S. *šamŠukdanu*, unknown.

It occurs in the following passages :

šamŠu-uk-da-na (v. *šamšuk-da-nu*), *KAR.* 203, r. iii, 56, Nin. 122634, for *TAB-UD-DA*, bray, anoint in oil.

T. *šamTerinu*, *šamgišgirru*.

Pl. 41, K. 8829, 9-11 :

<i>šamte-ri-nu</i>	<i>šam[giš-gir-ri]</i>
<i>šamGIŠ — GURUN</i>	<i>giš-[gir-ri]</i>
<i>šamna-ri-nu</i>	<i>šam</i>

The position of this group in its order in the series suggests that it may be closely allied or similar to the *Ricinus*-group. Indeed, this *Ricinus*-group (*i.e.* *šamšagabegalzu*) on 108860 (*CT.* xxxvii, ii, 29) actually contains either [*šamt*]e-ri-nu or [*šamn*]a-ri-nu :

[<i>šamšá</i>]-ga-be-gal-zu ut-liš ¹	.....
<i>šam</i> (?) [t]e (?) (or na (?)) -ri-nu	.....
<i>šamšá</i> -ga-be-gal-zu ut-liš	.....

VAT. 9000 :

<i>šamte — ri — nu</i>	<i>šamgiš — gir — ri</i>
<i>šamGIŠ — GURUN</i>	<i>šam</i> „

The possibility that this is another synonym for *Ricinus* is borne out by *šamGIŠ-GURUN* "wood + fruit", and *gišgirri*, perhaps a composite loan-word, *GIŠ* "wood" and *GIR* "dagger", *i.e.* a spiked wood which perhaps represents the husked seed-capsules of the *Ricinus*, "a large three-celled nut, covered with tough spines" (*VK.* 542).

On the other hand, there is a possibility that in *šamterinu* we might see the Syr. *šam t'rên*, some form of Dragon's Blood, prob. *Cinnabari* (*Dracæna cinnabari*) from Socotra, with a synonym *šam saipā* "sword drug", which may coincide with *gišgirri*; but here again there is some doubt, as *FJ.*² i, 368, quotes a description of *Sideritis achilleios* in Syriac

¹ " *Ricinus* in the common speech " . . .

as "a herb which is like *sam t'rên*". *Kinnabari* is mentioned by Diosc. as a costly pigment and medicine from Africa. The author of the *Periplus* (c. 60 A.D., Schoff, *Periplus*, 15 and 137) speaks of it as coming from the Island of Dioscorides (i.e. Socotra) (Schoff, *ib.* 34: *FHP.*² 675). Wellsted noted the two varieties of *Dracæna* in Arabia (*Travels*, quoted Schoff, *ib.* 137).

If, on the other hand, it were *Ricinus*, we might connect *terinu* and *narinu* with the root *arû* "shoot, vomit, defæcate" (on the analogy of *terdennu* from *redû*: *tartaḥanu* from *ratâḥu* (?) with *e* = *w*, as in *êdu* "one", Arab. *waḥad*. *Narinu*, possibly for *naurinu* (an initial *n* fornation, on the ground that *w* = *m*), parallel to the difficult form *namaddu* = *nauaddu*, taken by Jensen to be cognate to the Arab. *wadd* (*Kosmologie* 444).

[^{šam}]*Giš-gir-[ru]* is one of the drugs for *ašî* (pain or appetite), *Pl.* 29, K. 4566, 14: ^{šam}*iš* (so Boissier) -*gir-ru* is a drug against sorcery, †, Boissier, *RS.* 1894, 138, ii, 12. At the same time the connection with ^{šam}*šagabegalzu* should be closer, if we are to see *Ricinus* in it.

U. ^{šam}*Zāṭanu* ("itch (?) -plant").

This occurs in the previous list (p. 235, l. (f)) as "a drug for swollen feet". It is given the cryptic title of [*š*]er (or [*dā*]mi) *šîri šalmi* " [f]esh (or [b]lood) of a black snake", *CT.* xxxvii, 108859, i, 14: ^{šam}... -*ma-ḥi(tî)*, i.e. "a drug for -*maḥi*", bray alone and anoint in oil, *KAR.* 203, i, 45: *ib.*, r., iv, 24, "a drug that sickness not..." In *MT.* $\frac{1}{3}$ *ga* of ^{šam}*šada[nu]*, † (?), in milk knead, shave the patient's head and bind on (head trouble), *AM.* 41, 3, 5 + *CT.* xxiii, 27, 17. *ADD.* 1042 (re-exd.), includes it among PA of pomegranate, of ^šA-AM (citron (?)), of mulberry, of GI-BU, and along with the plant-drugs manna, *Arnoglosson*, ^{šam}*alamû*, ^{šam}DIL-BAT, *Asa foetida*, roses, cedar, cypress, juniper, *Acorus calamus*, myrrh, and pine-turpentine, doubtless an apothecary's list (cf. *Pl.* 35, K. 4180, A, 49). The fruit is used, †, to insert in the uterus of a woman who has been given noxious drugs to eat, and there is too much fluid in her womb (*KAR.* 194, r. 31).

A possible cognate is the Syr. *za'tî*, *scabies*, but there are so many variations (*šadanu*, *zadanu*, *šāṭanu*) that it is extremely doubtful.

XIV

TREES AND FRUITS.

TREES AND FRUITS

- A. 1. ¹²Lammu, with a wide range of meaning; exact medical meaning uncertain perhaps *Quercus coccifera* L. LAM = "acorn".
 2. ¹²LAM-MAR allanu, oak: esp. pessary, suppository.
 3. ¹²Belut, ¹²belit, *Quercus infectoria* L.
 4. ¹²Allankaniš, *Quercus coccifera* L.
 5. ¹²Sindû, a species of oak for building.
 6. ¹²LAM-GAL, bututtu, Pistachio, prob. *Pistacia Terebinthus* L.
 7. LAM-ĦAL, lubanu, Pistachio, *P. vera* L.:
¹²sirdu, *Amygdalus communis* L. (i.e. amara D.C.) the bitter almond: ¹²amšigdu matqu, the sweet almond.
 8. ¹²LAM-DU₃, tur (v. tar)-a-zu, perhaps *Pistacia vera*.
 9. (¹²) (¹²am)ŠE-NĀ-A, ¹²ŠE-NU, šunû, *Vitex Agnuscastus* L., "Chaste tree."
 10. ¹²amŠišbānu, *Vitex negundo* L., or *V. Agnuscastus* L., "Chaste tree."

1. Here should be included the following list of trees:

Pl. 40, 82-5-22, 576, r. 1, 2: VAT. 9000: Pl. 31, K. 8846, r. 17-26: Pl. 32, Rm. 364, r. 1-4: Pl. 34, S. 786 (cf. Meissner, MVAG. 1904, 3, 31):

¹² am a-šu-ĥu	¹² am me l-iĥ-ru
¹² am lam-mu	¹² am dul-bu
¹² am ŠE-NĀ-A	¹² am ši-lu-ur-tú ²
¹² am KIB	¹² am ĥa-aĥ-ĥu ³
5. ¹² am KIB-KUR-RA	¹² am ,, rabû(u)
¹² am ur ⁴ zi-nu	¹² am mu-uš-ku
¹² am su-kan-nu	¹² am ... ⁵ me-suk-ka-nu
¹² am lu-ba-nu	¹² am bu-ut-nu DU ₁₃ ^{pl 6}
¹² am ,,	¹² am ši-ig-du mat-qu ⁷
10. ¹² am ši-ig-du	¹² am šug ⁸ du
¹² am ši-qi-tum	¹² am nu-uš-ĥu ⁹
¹² am qat-ra-nu	¹² am ĥil zu (!)-ni ¹⁰
¹² am e-su-û	¹² am ia-ar-ĥu ¹¹
¹² am ak-la-bu-u	¹² am ,,

¹ 82-5-22, 576, mi.

² 82-5-22, 576, actually has for the ¹²amšilurtu-group an addition (restored from Mat. 88, iii, 72 ff.):—

[¹² am ka-zal-lu-ĥu	[¹² am] ši-lu-ur-tú
[¹² am ma-a-ru libitti	[¹² am] ši-lu-ur-tú
[¹² am ŠE-NĀ-A	¹² am] ši-lu-ur-tú
[¹² am ka-	¹² am ,, jina Šu-ba-ri

(and then ¹²am ĥa-aĥ-ĥu follows).

Mat. for l. 4 has erroneously ¹²am ka-nir-ĥu, which must be corrected ¹²am ka-zal-lu-ĥu with K. 8846, r. 20, and for ll. 5-6 has ,, . . for ši-lu-ur-tú. It adds a line below ¹²am ka- . . . , i.e. ¹²am ,, = ¹²am Muš-r[i-lu] ("Egyptian"). ³ K. 8846 omits this line.

⁴ K. 8846, ur.

⁵ 82-5-22, 576, mu-su.

⁶ K. 8846, S. 786, Rm. 364, and 82-5-22, 576, put this after ¹²am nu-uš-ĥu.

⁷ K. 8846 and 82-5-22, 576, omit this line. ⁸ 82-5-22, 576, šu-uq.

⁹ Here K. 8846 and 82-5-22, 576, continue with another group.

¹⁰ From VAT. 9000. It must surely be read eri.

¹¹ For this and the next line see p. 344.

1. ^{šam}Lammu, ^{šam}dulbu. Sumerian apparently has no simple LAM-tree, but Assyrian affords what is presumably an equivalent in ^{is}(^{šam})lam-mu, which has the three ¹ equivalences ^{šam}dulbu "plane" (p. 247), ^{is}Û-KU (= *ašuku*) "fir" (p. 289: *CT.* xviii, 3, viii-vii, 20), and ^{is}MİŠ (Meissner, *MVAG.* 1913, 2, 20, 24) (the latter having also the values *mēsu*, *šulmu*, and *šulum mēsi*). Obviously ^{is}lammu may include a wide range of meaning, although, since it occurs in *MT.*, it must have a definite medical significance: e.g. for an affection of flesh and limbs, †, drink its PA (tops) in wine, *AM.* 69, 1, 18. ^{is}Lam-ma is mentioned in a ritual (Ebeling, *ZA.* 1915-16, 277; *KAR.* 33); it is to be cut down (*batāqu*) in the garden, and in *ll.* 7, 8, ^{is}la-mu "from the garden" varies with ^{is}lam-mu in *l.* 10 and *r.*, *l.* 2.

On the other hand, the Sumerian LAM is found in the following compounds: (Meissner, *MVAG.* 1913, 2, 18 ff.: Meek, *RA.* 1920, 166, K. 9935: Langdon, *RA.* 1931, 19: Weidner, *AJSL.* 1921, 164): ^{šam}AL-LA-AN, ^{is}LAM-MAR = *allanu* ² (cf. also *SAI.* 6809): ^{is}LAM-ĤAL = *lupanu*: ^{is}LAM-GAL = *buṭu[t]tu*: ^{is}LAM-DU₁₃ = *tur* (v. *tar*) -a-zu (^{šam}LAM-MA = ^{šam}epitatu, p. 209), Scheil, *RT.* 1914, 186, is a vocabulary: . . . AL-LA-AN = . . . , followed by . . . LAM-ĤAR = . . . : . . . LAM-ĤAB = . . . : LAM-GAR ³ = . . . : . . . LAM-DU₁₃ = . . .

Taking these in turn with the sign LAM as a base:

2. ^{is}LAM-MAR, *allanu* (long accepted as the equivalent of the Heb. *allôn* "oak") is a drug in *MT.*, used thus:

(1) *Simply: ext.* Uncertain affection, prob. *stomach*, †, anoint ^{is}allanna in oil, *AM.* 94, 2, ii, 12. Uncertain, *AM.* 51, 12, 2 (^{šam}AL-LA-AN occurs, †, for *strangury*, *AM.* 59, 1, 40).

(2) BAR (bark) of ^{is}AL-LA-AN, bray, apply alone to *uterus* in wool, *KAR.* 194, iv, 18 (parallel, *ib.*, to [skin] of pomegranate as styptic).

(3) PA (tops); for *bile*, with *šam marti* ("drug for gall") drink in beer, *Kü.* iii, i, 23.

The habitat of the ^{is}allanu was ^{šad}Bi-ib-bu, *iiR.* 51, a-b, 9, and perhaps ^{šad}Še-še-ik, *ib.* c-d, 8.

Oak-bark is used in modern medicine, *P.* 979 giving it as "not official", but describing it as a local astringent, used for relaxed throat, leucorrhœa, gonorrhœa, etc. *LPG.* 134 ff. says that it has been administered equally successfully int. and ext. (constitutional leucorrhœa, diarrhœa, and dysentery) and by injections in the uterus for uterine hæmorrhage.

Apart from its use as a drug, we find further evidence for the meaning "oak" in the following:

^{is}Allanu is the actual word for a pessary or suppository, not only in its Semitic form, but even in the Sumerian ^{is}LAM-MAR (as Ebeling saw, *E.* xiii, 35), e.g. for anus-trouble bray various drugs in oil, make an *al-la-na* (v. ŠAL + U-nu), sprinkle with cypress oil, put into the fundament, *AM.* 43, 1, 4, dup. *KAR.* 157, r. 33. In this sense *allanu* occurs *AM.* 5, 7, 6: 43, 1, 10: 18, ii, 6: 50, 6, 6: 53, 9, 7: 53, 11, 7: 57, 5,

¹ Langdon's Kish text gives ^{is}LAM-GAL for all three.

² Gelb, *Inscr. from Alishar*, 25, has a form *a-lá-ni*, which he would make "rue", challenging the possibility of "oak" as well as the reading *allankaniš*.

³ So also *Mat.* i, iii, 1.

r. 9: 81, 9, 6. It may usually be recognized by the word DÛ-uš (*teppuṣ*) which follows it (e.g. ¹⁸LAM-MAR DÛ-uš (thou shalt make a suppository), in this case sprinkled with juniper-oil, and inserted in the fundament, KAR. 203, vii, 10. The ideogram šAL + U(-nu) obviously represents a picture of the vagina with a (cuneiform) wedge, i.e. the pessary. An "infant's suppository", *allan šerri*, is mentioned, BRP. iv, 37, 19: JRAS. 1924, 456.

Here we obviously have another indication of the "oak"; in the acorn-shape of the pessary (cf. the Greek βάλανος "acorn", with a similar value as a pessary): suppositories "are cast into moulds of a conical or pastille shape", DM. ii, 1561). In consequence, it is proper to compare the early form of the sign for LAM, as given in REC. no. 130, which appears to be a cone lying on its side with the apex to the left, and having two small tags projecting, which doubtless represent the small projection at the top of the acorn. We may note, also, the Syriac *ballūtā* "oak", which has also the meaning of a vase in the shape of an acorn (with which cf. *karpāt* LAM, D. 435, 4).

With the value "oak" as certain, we can discuss the name of the fifth month, *allanâte*, in the Old Assyrian Calendar (Landsberger, D. Kult. Kal. d. Bab. und Ass. 88 ff.: S. Smith, *Early Hist.* 115). Here, Smith would make the tree terebinth (I think, incorrectly), and Landsberger translates "Hirtenmonat". With our value "oak", however, the word (as a feminine plural) would at first suggest "acorns", and that the month was that of the acorn-harvest, that is, of the edible acorn which is commonly eaten in Mesopotamia. The month, however, is given as equal to Ab, i.e. July–August, which is too early for the ripening of the acorn; the acorns of the *Quercus Cerris*, the Turkey oak (obviously the proper species to compare) do not ripen until the first autumn (EB. xith ed., s.v. "Oak"), and we must, therefore, see some other product of the oak represented by *allanâte*. Yet still less can it be the kermes-scarlet, which reaches its last state in the middle or towards the end of May (Loudon, *Arboretum* 1913). I think it can refer only to the harvesting of the oak-manna which exactly fits this period (see p. 272). *Allanâte*, therefore, cannot here be the actual fruit of the oak, the acorn.

3. ¹⁸Beluṭ, ¹⁸belit, *Quercus infectoria* L.¹ The district round Harran in Sargon's time was, as it is now, the great centre for the oak which the Arabs call *ballūt*, from which are obtained the gall-apples. According to FJ.² i, 626, the *ballūt* includes, among other species, *Q. Aegilops* L. (the Valonia oak), *Q. Ballota* L., *Q. Cerris* L., and *Q. coccifera* L.² Domesday 29 contains the Assyrian records of the number of these ¹⁸beluṭ trees in the Harran district, one total being given as 49,300.

This large number of trees grown round Harran must have been for a particular purpose, surely the famous galls (rather than the acorns, or even the kermes-dye). The Mesopotamian galls are one of the outstanding exports from Basrah, more than £150,000 worth having been exported to the United Kingdom in 1912 (*Consular Report for Basra*, 1914), and

¹ [W. F. Albright in BASOR. no. 94, p. 21, n. 56, denies this meaning and reverts to "vines", without noticing AH. 123.]

² FP.² ii, 519, says that the *ballūt* is the deciduous oak, and is the *Q. sessiflora* Salisb., while the *Q. infectoria* Oliv. is called *abbas*.

in 1861 790 tons were imported from Turkey (VK. 430). Chesney (*Exped.* i, 107) says that Al-Jezirah (N. Mesopotamia) produces gall-nuts and yellow berries (doubtless of the sumach) from the mountains northward, and Olivier (*Voyage* iv, 273) that Mosul was an *entrepôt* for gall-nuts in his time. We must, therefore, see in the ¹⁸*belut* the *Q. infectoria*, the oak from which the galls come. It may be added that these galls, abnormal growths on the tree, are generally used for tannic acid, as they contain 50-60 per cent tannin, while oak bark produces the best leather known (*EB.* xith ed., xvi, 332-3).

It may be that the tablet found by Sir Leonard Woolley at Carchemish (and translated by me in his *Carchemish* ii, 135) relates to the gall and sumach trade in the neighbourhood of Carchemish. This text appears to be concerned with at least sixteen Syrians and their rights (perhaps in the ¹⁸*amikû*, for which, very tentatively, I suggested a comparison with the Syr. ¹⁸*augâ*, sumach, and in the ¹⁸*apisana* (?), possibly the Arabic ¹⁸*afš* (the oak which produces the gall-nut, and the gall-nut itself). Since a leather-worker, ¹⁸*aškapu*, is mentioned, we may perhaps be on the right track in this explanation. It is hardly necessary to mention how thriving the industry of leather-working has always been in N. Syria; e.g. Urfah produced "très beaux marroquins" in Olivier's time (*ib.* 221), and Buckingham (*Travels* i, 380) mentions 300 manufacturers of leather there. When Sargon flayed Ilubidi of Hamath (no great distance away) and dyed his skin red, the local industry must have been in his mind.

To go further into the species of oaks in these districts, we can quote Layard (*Nin. and Bab.* 665), who gives details from Dr. E. Dickson of oaks from Kurdistan. His picture of the acorn of *Q. infectoria* (the gall-oak) makes the fruit very much longer than that of English acorns, and I myself suspect that this must be the edible species which is brought into Mosul, which I have frequently seen. Ainsworth (*T.* ii, 193) gives only the *Q. Valonia* as the source of the Amadiyah galls for the market, but he was told that the *Q. infectoria*, *Q. pedunculata*, and *Q. cerris* also furnished them.

¹⁸*Belut* would appear definitely the *Q. infectoria*, and we can turn back to ¹⁸*allanu*. The two are clearly distinct species from ADD. 444, 5 and 6 (a contract relating to an estate in ¹⁸*mat* Singara, Sinjar, W. of Assyria), on which both are mentioned. The Sumerian equivalent ¹⁸LAM-MAR (resolved into its component means "acorn-tree" + ¹⁸*tultu* "worm", means "oak of the worm" which suggests that the correct meaning for the *allanu* is the kermes oak, the *Q. coccifera*. This was the meaning given to the Heb. *allôn* by Post, *FP.*² ii, 521.

4. ¹⁸*Allankaniš*.¹ The form ¹⁸*allakani* is used by Tiglath-pileser I (c. 1100 B.C.), introducing the tree into Assyria, along with a mention of ¹⁸*erinu* (cedar) and ¹⁸*urkarinu* (box) (*Cyl.* vii, 18), unfortunately not saying whence he obtained it.

¹⁸*Allankaniš* is used in *MT.* thus:

Int.: *Strangury*, alone, brayed, drunk in *kurunnu*-beer, *KAR.* 203, i, 27 (prob. dup. *Pl.* 27, K. 4430, 6, and *Pl.* 35, K. 4180, A, 28), like caper (the šē ru of it), heliotrope, yellow saffron, garlic, and thyme (*KAR.* *ib.* 24-9). *Difficult childbirth*, apparently chewed alone and drunk without

¹ Gelb would read ¹⁸*allankaman* (see p. 248).

a meal, *AM.* 67, 1, iv, 23, dup. *KAR.* 196, iv, 30. *Congestion of the lungs* with 26 others, uncertain use (prob. drink), *AM.* 83, 1, 7.

The first part of the word is obviously ¹⁸*allanu* "oak": I had at first sought a parallel for the second half in such words as the Arab. *šāh balkūtah*, the Syr. *ballūtai malkā* ("royal oak"), the chestnut. The chestnut occurs in Mesopotamia, *FJ.* i, 613 (but not on the flats of Assyria or Babylonia): it is properly a native of Asia Minor (*FP.*² ii, 524), *Castanea sativa* Mill. being reported from the Lebanon, and Antilebanon (but note Hehn, *Kult. vith ed.*, 386: "mit Sicherheit findet sich die europäische Form der *Castanea vesca* . . . im westlichen Transkaukasien . . . im südlichen Kleinasien scheint sie nicht einheimisch zu sein"). The modern word for it in the Near East is usually some form of *Castanea*; Hoefer (*Chaldée* 181) gives the Mesop. Arab. as *abu faruwa*.

But a better parallel for *kani(š)* is the Hittite *kanaš* "dye" (Weidner *Stud. z. Hett. Sprach.* 118). The variations in the terminations *kani* and *kaniš* at once suggest the nominative of a Hittite word, and hence, if we may connect the tree ¹⁸*allankaniš* with the words *allanu* "oak" + Hittite *kanaš* "dye", it must be the oak from which the kermes dye is obtained, the *Q. coccifera* L. (*FJ.* i, 630): *Q. tinctoria* Alph. D.C. or *Q. coccinea* Wangenh. are impossible, being indigenous to N. America. I think that we may regard the termination of the Armen. *kaskeni* as out of the question, since the other Armen. form is *kask*.

The use of ¹⁸*allankaniš* in *MT.* is paralleled in more modern times: "In the pharmacopœia of the ancients kermes triturated with vinegar was used as an outward application, especially in wounds of the nerves. From the 9th to the 16th century this insect formed an ingredient in the 'confectio alkermes', a well-known medicine, at one time official in the London pharmacopœia, as an astringent . . . Syrup of kermes was also prepared" (*EB.* xith ed., xv, 756). *IB.* 1756 says that if a woman takes it for seven days in honey her menstruation is deferred: in vinegar, she loses the capacity of conceiving. If it is threaded on silk, and worn, it cures fevers. Pomet (*HD.* 19) coincides still better: the syrup from the pulp of the kermes-oak is used to comfort women in childbed.

Incidentally, whether there can be any possibility of the Hittite *kanaš* and the Arab. *qirmiz* (kermes) being the same word is difficult to say. The variation of *n* and *m* in Semitic is well known (e.g. cf. (Arab.) *kurma* "vine" with (Assyr.) *karanu*, and (Arab.) *butm* with (Assyr.) *butnu*). Moreover, *r* is curious in Hittite hieroglyphs, wherein it appears to be conceived as a letter of smaller value than the rest, since it can be added to a sign by the mere appendage of a "tang" (as is noted in Hrozný, *Les Inscr. Hitt.* i, 101). E.g. in the word Gurgum, the Hittite signs for which I read *Gu-gu-m* (*Arch.* 1912-13, 30 ff.) the first sign was afterwards shown by others to be read *Gur*, owing to the "tang" (= *r*) which was attached (see Hrozný *ib.*). Indeed, to go further afield to modern savages, the *r*-sound among the Hadendowas of the E. Sudan is peculiar. I heard, for instance (*Man*, 1910, 180 ff.), *emba'di bersim* for "swordhilt guard", while Almqvist, *Die Bischari-Sprache* 44, quotes Munzinger as hearing *o'emba'dat* for "sword": I heard *e-mo'tâtâm* for "war", for which Almqvist quotes Munzinger as giving *ömotta* "sich streiten".

Other examples collected in Almqvist's book are: "four," *fadyg* (Burckhardt), *fardik* (Krockow), and *ferdik* (Lucas): "six," *ásagur* (Almqvist), *sarger* (Lucas): "eight," *ásimhei* (Almqvist), *sermai* (Lucas). Cf. also Hrozný *l.c.* on the same phenomenon. Indeed, in ancient languages we find (see *Arch.*, *l.c.*) *Sêduri* for the name of the later Sarduri, *Θωσπία* for *Turušpâ*, *Darmeseq* for *Dameseq*, *Γαυδάμηλα*, prob. the modern *Karamles*, and even the Arab. *kursî*, the Assy. *kussû*.

Is it possible to consider *tultu sâmtu* "red worm" as the kermes insect? I merely offer the following as a very tentative suggestion. In *DACG.* 11, I thought that the reading for *CT.* xiv, *pl.* 10, vii-viii, 17, restored from *Mat.* 88, 3, 40, gives *samânu ša GIŠ . ZI* = *tultu sâmtu*. It is unchallenged that *GIŠ . ZI* = *igaru*, and also that *samânu ša igari* (*É . GAR₈*) is a drug, "scab of the house-wall," *i.e.* *sal murale* (*DACG.*, *l.c.*). Nevertheless, the *GIŠ . ZI* of *Mat.* 88, 3, 40, is badly mutilated, and we have no definite evidence that *samânu É . GAR₈* is actually *tultu sâmtu*; the *ZI* might not unreasonably be a badly-written *GI* in this text, judging from the difficulty which Matouš' text has given, and if so, we should have the equivalence *samânu ša GIS.GI* (= *abu* "thicket") = *tultu sâmtu* ("red drug of the thicket" = "red worm"). Stress is always laid in *MT.* in writing out *samânu ša igari* in full with *igari*, in contrast to one instance of *samânu* alone without *igari*, as a drug (*AM.* 7, 3, 3), so that it might be that there were two kinds of *samânu*, and that the "red worm" is definitely the kermes insect, perhaps equated, as we should expect, with "red drug of the thicket", rather than with *sal murale*.

5, 6. ¹⁸*Sindâ*. The ¹⁸*si-in-da-a* makes its appearance about Sennacherib's time (*Luck.* 106, 28: 110, 37: 123, 35) for doors and pillars. It is the Arab. *sindiyan* (*Kl. Beitr.* 78: *AF.* 53), a general word for "oak" (*FJ.* ²i, 626), and it does not appear to have been used otherwise than for building (cf. *HWB.* 504). ¹⁸*LAM.GAL* = *buṭuttu*, ¹⁸*LAM.ḪAL* = *lubanu*, and ¹⁸*LAM.DU₁₃* = *tur* (v. *tar-a-zu*, a somewhat confused group based on the sign *LAM* ("acorn", obviously also with the meaning "pistachio").

From *Pl.* 40, *etc.* (p. 247), ¹⁸*amlubanu* = ¹⁸*ambutnu šihrûti^{pl}* = ¹⁸*amsigdu matqu*. Doubtless ¹⁸*amlubanu*, from its connection with ¹⁸*ambutnu*, is the same word as *lupanu*, another equivalent for ¹⁸*LAM.ḪAL* (*D.* 435, 5). We can omit for the moment the value ¹⁸*amsigdu matqu* ("sweet almond"), and confine ourselves to ¹⁸*ambutnu šihrûti^{pl}* ("small *butnu*") as equivalent to ¹⁸*amlubanu*. *Butnu* has long been identified with the Heb. *boṭnîm* (see *AF.* 54), sometimes translated "pistachio", *Pistacia vera* L., the Arab. *fustuḵ baladî* (*FP.* ²i, 286: *FJ.* i, 198) which I heard as *fustuḵ al-'abîd* in Baghdad. *FJ.* i, 192, however, believes the Heb. *boṭnîm* to be the fruit of *P. Terebinthus*, which is eaten in Mesopotamia (cf. *ib.* 193, 199) where it is called *butm*.

Here, therefore, we have to consider whether *butnu šihrûti^{pl}* "the small pistachio", is the fruit of *P. vera* L., a delicacy of the markets in the Near East (egg-shaped and 1-2 cm. long, *MPB.* ii, 709: "about the size of an olive," *VK.* 387, hardly true of the Mesopotamian pistachio, which is half that size), as distinct from *butnu* (without *šihrûti^{pl}*) which may represent the *P. Terebinthus*. This is borne out by the equivalence ¹⁸*LAM.GAL* "the great pistachio" = *bututtu* (*D.* 435, 16, identified by Hrozný, *Getr.* 70, with pistachio), *i.e.* the fem. form of *butnu* (not to be

confused with *buṭuttu*, a corn), which is the equivalent either of the Syr. *beṭm^athā*, which is *τερεβίνθη* (*P. palæstina*), or of *buṭmā*, the pistachio fruit (Brock. *s.v.*). While I myself have heard the Arab. *buṭm*¹ used in Mosul for the fruit of *P. khinjuk*, Stocks (identified for me by Dr. A. B. Rendle), *FJ.*² i, 194, gives the former (*beṭm^athā*) as the proper equivalent of the Heb. *elā*, *allā*, *allōn*, and *boṭnīm*. This equivalence of *buṭuttu* with *P. terebinthus*, not only thus maintained by *FJ.*, is confirmed by the line in the *Lamaštu*-text (iv *R.*², 56, iii, 37), *i-mid ¹⁵al-la-nu u ¹⁵bu-ut-nu ša šadē(e) ḥa-ma-di ru- . . .*, where ¹⁵*allanu*, the oak, is placed in juxtaposition with ¹⁵*buṭnu* of the mountains.

The ¹⁵*LAM.GAL* came from ¹⁵*adDA(?)*-par (or *-maš*) (ii *R.* 51, 1-2, 8 : see Ebeling, *Reallex.* ii, 104).

With this distinction probable, we can consider the use of ¹⁵*LAM.GAL* in *MT.*, once (as *LAM.GAL*) apparently for lungs, ext., with ground linseed (?) and *lepidium* (*AM.* 72, 2, 11, cf. *RA.* 1934, 26) and once as ¹⁵*LAM.GAL* (" . . . ¹⁵ša ¹⁵*LAM.GAL* ¹⁵*ḥašḥuru tupašā(a)*, i.e. . . . of ¹⁵*LAM.GAL*, apple, thou shalt dry") apparently, but not certainly, as a poultice, for looseness of the bowels, *AM.* 95, 3, 11 (*RA.* 1929, 74).

P. Terebinthus attains a much greater height than *P. vera* and from it is obtained the Cyprus or Chian turpentine by wounding the bark. Oil of turpentine is a powerful stimulant int. and ext. (purgative, diuretic, etc.), and ext. is used for rheumatism and local pains (*VK.* 563). Hippocrates employed the fruits, buds, and resin pereira (*PMM.* ii, ii, 37). The *P. vera* grows from 25 to 30 feet high and is a native of Asia Minor, being particularly abundant in Syria (and grows wild there, *FJ.* i, 198), and the wood is hard, resinous, excellent for fuel, and proper for economic purposes (*VK.* 388).

The probability is, therefore, that the ¹⁵*LAM.GAL*, the great *LAM*, *buṭuttu*, is the *P. Terebinthus* with *buṭnu* as a synonym, while *buṭnu šihrūti*¹ is the proper expression for the fruit of *P. vera*, synonymous with *lupanu* or *lubanu*. The *LAM.GAL.GAL* occurs as far back as the Agade period (De Genouillac, *ITT.* ii, 2, 4658).

7. With *lupanu*, *lubanu* as the fruit of *P. vera*, it would seem obvious that this word is a derivative of the ¹⁵*ulupu* (*ulubu*) mentioned in the district of Harran (150 ¹⁵*šarbutu ¹⁵ulupu*) in *Domesday* 3, i, 9. ii *R.* 51, a-b, 8 (Meissner, *MVAG.* 1910, 5) gives ¹⁵*ad*[*Šarru*]-gi-na as the habitat of *lupani*.

We have also to consider the other value for ¹⁵*LAM.ḪAL*, ¹⁵*amšiqdu matqu* "sweet almond", but before doing so we can, I think, definitely say that the Sumerian shows that properly *P. vera* was the original meaning. The sign *ḪAL*, with its equivalent in Semitic, *zāzu* "to divide", indicates that in ¹⁵*LAM.ḪAL* we have "the pistachio (acorn) which divides", which all who have seen the pistachio nut ("a brittle two-valved shell", *PC.* xviii, 1840, 187) will readily recognize: the shell can easily be split in two with a knife inserted between the valves. It is merely another indication of the usual confusion which occurs in certain Semitic words.

On *Pl.* 40, etc., ¹⁵*amšiqdu* = ¹⁵*amšuqdu*, and ¹⁵*amšiqittu* = ¹⁵*amnušḫu*. The former are the Assyrian cognate for the Heb. *šāqēdh* "almond" (Meissner,

¹ The Rwala tribe collect the ripe fruit of the *buṭm* tree, dry it and grind it, and mix it with wheat flour (Musil, *Manners and Customs of the Rwala Bedouins*, 95).

MVAG. 1904, 4, 31), while *šiqittu* will be the feminine. *Nušhu* must be, as I suggested in *AH.* 182, the same as the Arab. *lauz* "almond", the *n* varying with *l*, as is not uncommon,¹ and the *šh* representing *z* as in Syr. *hazzûrâ* = Assy. *hašharu*. Indeed, *FJ.*² iii, 153, gives the Arab. *lôz* as the actual equivalent of the Heb. *šagêdh*.

From this we can continue with *si-sir-du*.

PA *si-sir-du* occurs alongside PA *si-ir-di* in *AM.* 68, 1, 18, and PA *si-sir-du* occurs *ib.* 6. *Si-sir-du* will be the Syr. *šâr'dhâ*, the bitter almond. It occurs as far back² as Sargon I's expedition to Asia Minor (*si-ir-du*, Weidner, *Boghaz K. Stud.* 6, 1922, 68). Sennacherib (King, *CT.* xxvi, 30, viii, 51-2) planted *karanu gimir inbi si-ir-du riqqê³ a dannîš išmulhu* in the royal domain (*cf.* also *ib.* 29, viii, 21, *riqqê³ a u si-ir-di ana ba'uli azqup*) and note also his *šaman si-sir-di u hibišti ša kirâte⁴* "almond oil and the products of the gardens" (*ib.* 30, viii, 71-2) *Si-ir-di* occurs *ADD.* 693, r. 4: various pots of *sirdi*, with *andahše*, quince, etc. (see *ADD.*, glossary, 328) and 4 DUQ of PA *si-r-di-e*, *ib.* no. 1002, 3.

In *MT.* we find *si-sir-du* used thus:

(1) PA (tops): for feet, *AM.* 68, 1, 6, 18: (2) Oil: for head, apply with boiled plaster, *AM.* 2, 1, r. 10 + *CT.* xxiii, 25, 32. For ghost, anoint, *AM.* 33, 3, 7, dup. 96, 4 11. Prob. ext., for pregnant woman, *KAR.* 223, r. 10, Ext., *KAR.* 198, 11.

The Ashur texts allow us to date the use of *si-sir-du* as certainly early in the first millennium B.C., and the historical texts to Sargon II's time. The bitter almond is a variety of *Amygdalus communis* L. (*i.e.* *amara* D.C.): the almond grows westward from Persia through Syria to Algeria (*MPB.* i, 852): Olivier, for instance, mentions the almond a few days N.W. of Anah on the Euphrates.

In medicine the sweet almond is used in the preparation of confection, emulsion, and oil; the bitter almond is prescribed for pulmonary affections, gastrodynia, whooping cough, and tapeworm, and the water for painful menstruation. Ext. the emulsion has been used as a wash to relieve irritation (*PMM.* ii, ii, 247 ff.). *P.* 150 says that almond oil is emollient, demulcent, and laxative.

A form (*si*)*lu-ba-nat* occurs in various Elamite documents (Scheil, *RA.* 1925, 152) as incense (5 mana, 1 mana, and 50 shekels, and 10 mana) along with *mu-ir-ri-[um]*, myrrh (*cf.* *MMAP.* ix, nos. 49, 158, and 186). It parallels the Heb. *l'bhônâh* ("the white") "frankincense" (the Arabic *luban*), but, having regard to its late use, I am inclined to doubt its connection with the word for pistachio.³

8. *si-LAM-DU*₁₃, *tur-a-zu*, *tar-a-zu*, properly the "small pistachio". If so, then we must equate it also with *butnu šihrate⁴*; otherwise it suggests the Syr. *tar'ûzê* "eine Gurkenart", Hoffmann, *Opuscula*

¹ As in *lardu* = nard, *Haligalbatâ* = *Hanigalbat* (Weidner, *Bogh. Stud.* vi, 77). Are we to see in *amnušhu* "almond" the origin of *nuz* as a borrowed eastern word?

² *Cf.* the simile in describing the carving of a handle: *ša se-ir-da i-ki-iz-zi-ru i-na lib-bi-šu-nu*, *TA.* i, 115 (from Amenophis to Burna-Buriash).

³ In the case of *si-LAM-HAL*, *lubanu*, it might be possible to see in *HAL* the value *garâru* "to run", comparing it with the use in *si-HAL*, *galbanum*, and thus suggesting *Pistacia lentiscus*, the mastic, for *lubanu*. But this seems unlikely; *si-lubanat* is not the same as *lubanu*, nor is the mastic an incense. There is no plant marked by this ideogram *si* which seems likely to represent mastic, the gum of *P. lentiscus* and, unless we are to see the latter in one of the *LAM*-group, it would appear that mastic was not known to the Assyrians.

Nestoriana, reviewed by Nöldeke, *ZDMG.* 1881, 497 = Aram. *ṭrúzá*, *Sabb.* 109a.

LAM-DU₁₃-DU₁₃ occurs in the Epoch of Agade, De Genouillac, *ITT.* ii, 2, 4658.

^{šam}AŠ-PI-PI, a synonym for *hašhur abi*.

^{šam}MUR.DÙ.DÙ, *murdudû*, perhaps the *Cynips* producing the oak-galls.

hašhur abi, probably oak-galls.

Pl. 38, S. 8, Cols. A-B, 12-15, gives :

^{šam} MUR-DÙ-DÙ	<i>mu-ur-du-du-u</i>
^{šam} AŠ-PI-PI	<i>áš-ta-be-lu</i>
^{šam} ^{is} MA + GUNU	<i>ha-áš-hu-ra-ku</i>
^{šam} ^{is} MA + GUNU- ^{is} GÌ	<i>ha-áš-hu-ur a-bi</i>

and *Pl.* 32, S. 1328, 9-10, dup. *Pl.* 39, K. 10126, 2-3 :

[^{šam} ^{is} MA + GUNU- ^{is}]GÌ	^{šam} ^{is} <i>hašhur a-b[i]</i>
.....-nu	^{šam} ditto <i>ina Šú-ba-r[i]</i>

Possibly restore *Pl.* 21, K. 267, vi-v, 25 :

^{šam} AŠ-PI-[PI]		[^{šam}] <i>ha-[ru]-bu</i>
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Mat. 86, 7-9, 8-9 (*p.* 550) :

^{šam} GUB-GUB-BI-ZI-DA		<i>da-da-ru</i>		<i>kur-k[i (?)]</i> . .
^{šam} AŠ — PI — PI		<i>ar-da-aš-lum</i>		„

Now, since *hašhuru* is “apple”, ^{is}*hašhur abi* would mean “apple of the (reed) thicket”, and for this I suggested “gall-apple” in *AH.* 122.

First, what exactly is *abu*? Anp. (*AKA.* 262, 23) says that he cut down his enemies *kima* GÌ *a-bi* “like the reed of the thicket”. Sennacherib cut down the *a-pi ku-pi-e* of Kaldi for the sake of their *appari* (*Luck.* 98, 72). It would thus certainly appear to be a cane-brake, and particularly the reed-beds of S. Babylonia (esp. cf. *ISA.* 18, *h.* 2, of Zur-Nanše).

On the other hand, *abu*, although it is a special word for the reed-beds, might perhaps cover every form of copse of scrub or undergrowth. The Broken Obelisk (iv, 23, *AKA.* 141) speaks of “swine of the *abi*”, and there is a well-known sculpture of Sennacherib which shows a wild sow and her litter passing through the reeds on the river bank at Nineveh (Layard, *Mon.* ii, 12). Yet I myself saw a wild swine near a watercourse at Zakho, a long way north of Nineveh, and I was also told of one in the *hawiga*-scrub near Mosul.

There is, however, another possible channel, and yet this too is uncertain, depending as it does on an emendation, which is a very risky course in any Assyrian tablet. It is that the equivalence in *Mat.* 88, 3, 40, *samanu ša* ^{is}ZI = *tultu samtu* might conceivably be read *samanu ša* ^{is}GÌ, i.e. the kermes-worm of the oaks (see, for a discussion of this, *p.* 252).

Interesting is the decoration apparently of a couch : *še'itu nalbanâte* IG1^{pl} *aban*^{PAR}-[^šŠ] ^{is}*hašhur abi* *aban*^{KA} *aban*^{GUG} *aban*^{ZAGIN} *ilabbu[ni]* (collated by Bauer, *Inschriftenwerk.* *Asb.* 50, on Streck, *Asb.* ii, 296, 20) “the

še'itu of the *nalbanâte* (brick-work building of some kind) . . . they surrounded with 'eyes' (beads, *DACG.* xl) of alabaster, *hašhur abi* of red ochre, carnelian (or similar red stone), lapis (blue)". It is by no means clear what the decoration was, but *hašhur abi* "apple of the thicket" suggests small spherical knops.¹

A picture of these gall-apples of the oak, and of the fly producing them in Asia Minor, are given in Olivier's *Travels* ii, between 40-4, where he says that the galls fall every year at the end of the autumn, but that they are much more esteemed when they are gathered before maturity "towards the middle of Messidor". They have no smell, but have a somewhat acidulous taste, *BMP.* 249. For a good description by a specialist see Ainsworth i, 193.

¹⁸*Hašhur abi* occurs in *MT.* thus :

Simply : *Mouth-trouble* (KA-DIB-BI-DA) with *Ammi* and mustard, cleanse mouth, *AM.* 23, 2, 6, dup. 78, 1, 19. *Stomachic* (šā-gīg for šā-gīg (?)). *Pl.* 48, *Rm.* 328, r. v, 8 : for ṬṬ^{vi} alone drink in beer or wine, *KAR.* 203, iv, 50, dup. *Pl.* 37, *Rm.* 357, 1 : cf. *Pl.* 29, K. 4566 + *Pl.* 26, K. 14047, 12. "A drug for stopping blood" [¹⁸*hašhur*] *abi*, *Pl.* 36, 79-7-8, 22, r. 3. *Virility charm*, †, bray, drink in *kurunnu*-beer, *Liebesz.* 56, 3 (^{3am}MUL-DÛ-DÛ, *ib.* 50, 7).

Now, although there are not many prescriptions containing ¹⁸*hašhur abi*, what there are are very definitely indicative of a styptic (such as the tannin of the gall-apple), the use for the mouth, for stopping hæmorrhage, and as a stomachic are paralleled by the use of the tannic acid of the galls of the oak in India, where they are prescribed as astringent for menorrhagia, chronic diarrhœa, and dysentery, and locally as a gargle, and as an injection in leucorrhœa and atony of the vagina and rectum (*BMM.* 501), and in local application to the eye, gums, ulcers, and in toothache, and on sore nipples (*Pharm. Ind.* 211). *P.* 550 prescribes it to suppress hæmorrhage from the gums, etc. This goes far to prove the equivalence "gall-apple".²

Important, also, is the synonymous use "in common speech" of ^{3am}*margušu rab[ī]* "great *Artemisia*" (*p.* 360), wormwood, the probable reference being to the bitterness of the two synonyms. Moreover, the Heb. *tappūhīm*, properly "apples", has the particular meaning of "galls" : "Man bringt aus Kurdistan *tappūhīm*, die Galläpfel heissen" (*FJ.*² i, 632, ink from them, *ib.* iii, 216). Compare also the various uses of the Syr. *hazzūrā* "apple". Our equivalence *hašhuraku* (= ^{3am}*is*_{MA} + GUNU "drug of the apple") must be compared to such words as ^{3el}*elammaku*, *amna(k)ku*, and perhaps ^{3am}*ašlukatu*, ^{3am}*abukatu*, as having the termination -*aku*.

The other synonyms for ¹⁸*hašhur abi* are :

(1) ^{3am}MUR-DÛ-DÛ (cf. ^{3am}MUL-DÛ-DÛ, *Liebesz.* 50, 7), with its Assyrianized form *murdudû*. It occurs in *MT.* as a drug for removing sorcery (note that it is used alongside ¹⁸*hašhur abi*), †, *AM.* 87, 5, r. 9.

¹ I think that we may relinquish the suggestion which I made in *AH.* 122 of "knops" or "rough burs" of the *burre* reeds, *Sparganium* of Gerarde (41), as a glance at the picture of such "burs" will show.

² At the same time, I ought to point out that Meissner (*MAOG.* 1937, *Stud.* iii, 41) does not agree that *hašhur abi* is the gall-apple.

Head, with *šam*šašumtu, †, [apply], *AM.* 2, 1, 20. To remove AN-TA-ŠUB (prob. ext., but the directions are "wanting"; the parallel prescriptions give AŠ-su), *KAR.* 186, r. 24. *šam*MUR-DÛ-DÛ occurs, Boissier, *RS.* 1894, 141, ii, 15.

Since MUR = *tultu* "worm", and DÛ-DÛ = *nadû*, *šakânu*, etc. ("put, place") we may see here the Assyrian recognition of the *Cynips* causing the galls, although it is more than probable that the word refers to the larva rather than the winged insect which causes the gall ("when the insect (*i.e.* the larva) has left them, they are pierced from the interior to the surface", in the case of oak-galls, *VK.* 430). We have thus another piece of evidence for *š*hašhur *abi* = "galls".

(2) *šam*AŠ-PI-PI. PI-PI is not only a word used by itself as a plant, *šam*PI-PI = *šimru* (not "urru (?)", as Deimel, 383, 48) "fennel", but also in the plant *šam*UR-PI-PI, which may be a plantain.

*šam*AŠ-PI-PI is used thus in *MT.*:

Simply: ext.: Hand of Ghost, † (including *šam*AŠ), anoint locally, and then hang on neck, *AM.* 95, 2, 9. *Hand of Ghost* affecting eyes, anoint with blood of cedar, and then hang on neck, †, *KAR.* 182, r. 21.

Int.: Stomach, †, bray, drink in *kurunnu*-beer or wine, *AM.* 87, 1, 11. *Sorcery* (?), †, drink in wine or beer, *AM.* 89, 1, 8. *Lung-trouble*, calling for a poultice on the chest, "bray *šam*AŠ-PI-PI daily, beat (it) up in refined oil, and let his tongue take (it), (and) let him drink it," *AM.* 28, 8, 11 (for the complete text see *RA.* 1934, p. 2, where I see I have translated *šam*AŠ-PI-PI as *Asa foetida*). Apparently as aphrodisiac, † ("If a man goes to his wife and . . . to another woman goes") *AM.* 66, 1, 6.

*šam*AŠ-PI-PI is clearly not a word in common use, and although there is little in the *MT.* use which prevents it from being a word for the gall-tannin, there is nothing definite. I doubt whether my suggestion for a form of *Asa foetida* (*AH.* 266) is as satisfactory.

(3) *šam*Aštabelu might suggest "dry *šam*AŠ" (making *tabelu* equal to *tabilu*), but doubtful. *šam*Aštabela is used in a venereal (?) prescription, along with *šam*lišan kalbi (*Arnoglosson*), *šam*AŠ . . . , mandrake, and three others (*AM.* 32, 1, 7). A longer form of the word, *šamaštabela[nu]* occurs, *Pl.* 46, *Rm.* ii, 203, 6, equivalent to *šam*lišan kalbi, and obviously, since *šam*lišan [kalbi] and *šamaštabela* occur together, different from this latter.

*šam*Ardašlum, as synonym for *šam*AŠ-PI-PI, is similarly in an aphrodisiac with cantharides, *AM.* 88, 3, 5, to be drunk. *šam*kur-ki (?) is also a synonym of *šam*AŠ-PI-PI, and *šam*GUB-GUB-BI-ZI-DA, *šamdadaru* is, by inference, another. In this latter we might again see a drug with a noxious smell or taste (since *dadaru* = *bu'sānu*, v, *R.* 47, a, 53). Moreover, *VAT.* 9000 gives, as one of many equivalences for *šam*bu'sānu the Sumerian *šam*RIM, which has the value "manna". One is rather inclined to ask, is not *šam*RIM, from its very character indicating a globe or sphere, properly the spherical gall of the oak, which, by a transference of meaning, as one of the products of the oak, became one of the many synonyms for "manna" (p. 268)?

*šam*Dadaru occurs in the *VM.* (*Pl.* 42, K. 4140, B, 10: *Pl.* 44, K. 4152, i-ii, 34: *Mat.* 88, 1, 60, as *šamdā-di* (!)-ru) the texts giving respectively *šamdadaru* | ina šī[R] . . . , *šamdada*[ru] | [ina] . . . ^{pl}, and *šamdadiru* | ina šīR karani.

B. 1. ^(is)(^{ria})^{LI}, *burašu*, *Pinus pinea* L., pine (turpentine, resin).

2. ^(is)(^{ria})^{LI-PAR}, *sîhu*, *šîhu*, *Pinus Halepensis* Mill.

1. ^(is)(^{ria})^{LI}, *burašu* is the commonest drug in *MT.*, long identified with the Heb. *bərôš* "pine" or "cypress". Of these two meanings "pine" seems to be more probable; the Phoen. *ai bôšim* (= *ai bərôšim*) "Isle of Pines", *Περύβοαι* (Robertson Smith, *Prophets*, iv, n. 20). Pliny (*NH.* xii, 39) says that the *bratus* (= *βραθυ*, *bərôš*) grew in the Zagros Mountains, that the wood was imported from Elam, and that it was like cypress, with a wood which emitted a pleasant smell when burned. We already have two Assyrian words for cypresses, ^{is}*šurmênu* and ^{is}*imdu*.

Shalmaneser (ninth cent. B.C.) obtained beams of *bu-ra-ši* along with *e-ri-ni* (cedar) from the Amanus Mountains (*Mon.* ii, 9). Sargon mentions the "Mountains of ^{ria}*buraši*" at Mallau, in the neighbourhood of Van (*HC.* 29, 169); another locality for them was Hana, said to lie on the Middle Euphrates, but this is hardly likely as a habitat for pines (ii *R.* 51 a-b, 10). Yet the ^{is}*burašu* was not the most popular tree for buildings, although it is true that Sargon II mentions its scent, *HC.* 35, 211 : 41, 246; from the earliest times to the Fall of Babylon the *ašuhu* (fir), and still more the cypress and cedar, are mentioned thus rather than the *burašu*. On the other hand ^{ria}*burašu* is common as incense, and we find 3 *qa* of it as far back as Rim-Sin (c. twentieth cent. B.C.) and 10 (*qa*) and 3 *qa* on a Larsa text (C. F. Jean, *Bab.* 1929-30, 179 and 176 : (*Contr. de Larsa*, no. 71, r. 48 and o. 18).

The modern habitat of the pine agrees well with that given by the Assyrians, i.e. from the Amanus eastward to the mountains east of Baghdad and north of these. *Pinus pinea* L. is found in Asia Minor up to a height of 725 metres (*MPB.* ii, 114). Olivier (*Travels* i, 67) speaks of cypresses, pines and planes near Constantinople, and the Aleppo pine at Prinkipo (*pin blanc*, *ib.* 90) (for turpentine, see *p.* 259).

^{is}^{LI}, *burašu*, is thus probably *P. pinea* L., the tree, but also ^{ria}^{LI} is found used for both the tree and the drug which it provides, e.g. ^{ria}^{LI} KAKKUL-BI PA-MUL-BI SUH-SUH "pin dont le vase et la fleur brillante sont exaltés", Dhorme, *Shurpu* ix, 51, *RT.* 1907, 126, 51. Again, the Assyrian song *KAR.* 153, r. iii, 16, begins *šār* ^{ria}^{LI} *lā tezini* "O breeze, dost thou not smell of the breath of the pine?" which must surely be the tree itself.¹

On the other hand, the meaning "turpentine" is obvious in the recipe for a sulphur-soap (*p.* 34), consisting of salicornia alkali, sulphur, and ^{ria}^{LI}. Some liquid medium here is essential, and turpentine fits the case admirably, as a well-known solvent of sulphur. In *MT.* it is administered internally for urinary and kidney trouble, which coincides with the use of turpentine as a diuretic (see *p.* 259). Resin is never used internally, *P.* 1006.

Yet, further, ^{ria}^{LI} is used in *MT.* also as resin, as is obvious from the way in which it is "brayed", or "pounded", or used in fumigations, or

¹ ^{ria}^{LI} is especially associated with the god Adad (*BBR.* no. 27, 1), perhaps through the fragrance being borne on the wind.

incense, where turpentine would be impossible¹: "Dry pine resin, of which Common Frankincense is the type, evolves when heated an agreeable smell: hence in ancient times it was commonly used in English churches in place of the more costly olibanum" (*FHP.* 549). *P.* 1007 says that resin ("the residue from the crude Oleo-Resin of various species of *Pinus*, after the Oil of Turpentine has been removed by distillation") when strongly heated, evolves heavy white vapour possessing an aromatic odour, and when ignited burns readily with a yellow flame, emitting a dense sooty smoke. Oil of turpentine, on the other hand, is impossible here: "the copious fumes of smoke render oil of turpentine an unpleasant article of combustion in private houses" (*PC.* xxv, 433). The use of all sweet-smelling incense is intended to render the atmosphere pleasant (as doubtless happened in houses of the well-to-do), just as evil-smelling fumes were used to drive away demons.

In Assyrian rituals ^{ria}LI is usually burnt alone on a *niknakku* (Thureau-Dangin, *RA.* 1920, 72, 9: *BBR.* no. 45, ii, 5: no. 46, 9: no. 48, 8: no. 49, vi, 5: no. 50, iii, 4: no. 53, 8: *KAR.* 184, 41),² but at times three *niknakki* containing respectively ^{ria}burašu, ^{ierinu} (cedar) and *mašhāti* (*BBR.* no. 1, 53), or even three containing *riqqē*³ (ib. no. 52, 11). Most important is it to note that, beside being used alone, it is actually burned in a *niknakku* with other substances, e.g. *mašhāti* is burned together with ^{ria}burašu (ib. no. 57, 9); 7 *niknakki* burn ^{ria}burašu and ^{šam}KUR-KUR (hellebore) presumably together, as it is not specified which is to burn which (ib. no. 26, 17): in *KAR.* 72, r. 3, myrrh and ^{ria}burašu are used (but here there is some doubt, as they are set *ina bābi ta-a-an*). So also must the contract *Camb.* 126 be understood: "8 mana of *riqqē*, 1 of *ballukku*, 18 *qa* of *burašu* for the censer of the Sun-god, *Āa*, and *Bunene*, the gods of *Sippar*" (the *qa*-measure for *burašu* distinct from the weight of the others indicating an auxiliary inflammatory substance, see *p.* 264).

The use of *burašu* in *MT.* is comparable to the modern prescriptions for turpentine and resin in medicine. In general the Assyrian doctor used it externally for eyes, ears, feet, breast, lungs, and anus, and for coughs and swellings, and internally for kidney-trouble, with black saltpetre and ostrich-egg shell (see *AfO.* 1937, xi, 336) which shows a knowledge of diuretics. ^{ria}LI has a particular oil used for ears and lungs, and the pleasant scent of this oil was used in "popularity" charms. The "powder", which presumably is powdered resin, is used on bruises, in childbirth, and for weak hair. The "clear water" of ^{ria}LI (*p.* 261),³ to be sprinkled on the house-top before a ritual before *Gula* (*cf.* *Jer.* xix, 13, and *Zeph.* i, 5) was a simple use for laying the dust with a pleasant fragrance on the air.

Compare with this the modern use of oil of turpentine (*terebinthinæ oleum*) as antiseptic, expectorant (*cf.* the Assyrian use for too much saliva), hæmostatic, diuretic, and anthelmintic. *BMI.* 174 ff. prescribes an ext. application, followed by a warm flannel, for stomachic affections,

¹ Any argument from the use of the *qa*-measure for ^{ria}LI is invalid here; it is true that liquids are measured by *qa*, but we find that as incense, it is measured this way as against the *mana* weight for *riqqē* (see *p.* 19), so that, if turpentine emits an unpleasant odour when burned, we must accept that ^{ria}burašu in incense is powdered resin.

² The form ^{ier}LI is thus used, *KAR.* 157, 37.

³ Note the parallel ^{ier}LI.

and bronchitis, and its use in enemata, while an ointment can be made of it with white or black dammar, yellow wax, and *kokum* butter. *BMM.* 513-15 gives that of *P. Longifolia* for fumigations and chest plasters, the oil int. for gleet and gonorrhœa, the resin as diaphoretic and as a paste for buboes and as fumigatory for ulcers: and the resin of *P. deodara* for skin diseases. In England a hundred years ago (*PC.* xxv, 432) oil of turpentine was used as a stimulant to the stomach, for the secretions of bile, of the kidneys, and of the uterus, in obstructions from gall-stones, and for numerous other affections.

In *MT.* it is found:

^{ria}LI:

(1) Simply: *ext.*: *Eyes*, †, [*AM.* 12, 4, 11]: 14, 3, 3. *Ears*, brayed alone on wool, *AM.* 34, 1, 5 (followed by oil, and *hîlu* "gum" of ^{ria}AN.BAR): †, followed by oil . . ., *ib.* 13: †, (two oils), 38, 4, ii, 5 + 37, 10, 6. *Feet*, †, rub, *AM.* 69, 7, 4: with ^{ria}GAM.GAM (fir-turpentine) bray alone, apply, 74, 1, iii, 2: (PA ^{is}GI.PAR, PA of licorice, PA of laurel, and fir-turpentine), locally, *ib.* 5: Breast, †, poultice, *AM.* 26, 3, 3: 49, 1, iv, 7. *Lungs*, †, poultice, *AM.* 55, 1, 8: *sim.*, or breast, †, poultice, 72, 2, 6, *dup.* 64, 3, 8. *Cough*, †, bind on, *AM.* 50, 3, 2, 8. *Anus*, †, after pounding, apply brayed in *himetu*-ghee, *KAR.* 191, r. iii, 9. *Swollen muscles* (SA^{vi} ZI^{vi}) of hands and feet, †, *AM.* 98, 3, 16 + 39, 3, 1. *Swelling*, with fir-turpentine in pig-fat, *etc.*, in beer, bind on, *AM.* 73, 1, 26. *Diksi* (bruise), †, poultice, *KAR.* 182, 32. "Poison," †, poultice, *AM.* 98, 3, 9. *Gonorrhœa*, bind tip of penis in fat, *AM.* 58, 6, 5, *dup.* *KAR.* 193, 20. *Hand of Ghost*, †, poultice after rubbing the place with "cedar-blood", *AM.* 93, 1, 13.

Suppository, †, in fat and cypress-oil, *AM.* 43, 1, 3: [with fat (?)], sprinkled with cedar-oil, 101, 3, 4. *Enema*, †, *AM.* 56, 1, [4], 10, 14: 94, 2, 4, 7: *KAR.* 157, 4 (the form ^{is}LI, †, similarly as enema, *ib.* r. 14).

Int.: *Kidney-trouble*, with black saltpetre, and ostrich-egg shell (*i.e.* carbonate of lime) in squeezed grapes drink, *AM.* 39, 6, 9. *Urinary trouble*, 15 grains of black saltpetre with "a quarter" of ^{ria}LI, drink in *kurunnu*-beer, *KAR.* 155, 2, 10. *Jaundice*, alone, drink in beer, *Kü.* iii, iii, 8. *Stomach*, with "gall-plant" drink in beer, *Kü.* ii, iii, 22. Some *female trouble*, with licorice-seed and *Asa foetida*, bray and drink in beer, *KAR.* 194, r. iv, 4. *Too much saliva*, †, uncertain use, *AM.* 31, 4, 19. *Tooth* (or *mouth*), with fir-turpentine, and † (?), uncertain use, *AM.* 78, 1, 28.

Fumigate: *Eyes*, †, [*AM.* 12, 4, 8]. *Ears*, †, *AM.* 33, 1, 31 (*dup.* 34, 5, 6, and 38, 2, r. 8).

Quantities: $\frac{1}{2}$ *mana*, *AM.* 51, 8, 10: $\frac{1}{3}$ *mana*, *AM.* 56, 1, 14 (in enema): $\frac{1}{3}$ *ma* (*sic*), *AM.* 43, 5, 9: [10 shekels], *AM.* 57, 3, r. 10: 1 shekel, *AM.* 40, 1, 62: 15 carats, *AM.* 49, 6, r. 1 (poultice): $\frac{1}{2}$ *qa*, *AM.* 73, 1, 8.

(2) Seed of ^{ria}LI: *ext.* *Eyes*, †, *AM.* 8, 1, 17 (*dup.* Scheil, *RA.* 1921, 6, 5): *AM.* 19, 6, 5, 10. *Blains* (*šigati*), †, *AM.* 32, 5, 5.

Uncertain use: "Retention of anus-trouble," †, *AM.* 40, 5, 18.

Enema: 3 shekels, †, *AM.* 41, 1, 14, 15.

(3) *Oil*: *ext.* *Ears*, †, *AM.* 35, 2, 12. *Lungs*, with oil of fir-turpentine anoint, *AM.* 5, 1, 8. In a charm against unpopularity (*i.e.* the drug has a pleasant smell), †, anoint, *AM.* 87, 1, r. 9, 12.

(4) *Water*: in ritual before Gula, on roof, sweep the earth, sprinkle with "pure water of ^{riq}LI", *KAR.* 73, 7, (the form "pure water of ^{is}LI" on *KAR.* 157, 35 (cf. 40)).

(5) *ZID* (powder): *ext. Bruise* (*dikši*), †, boil, anoint the place with oil (or *hīmetu*-ghee) and poultice, *AM.* 96, 1, 9. Childbirth, 1 *ga* (of *ZID* ^{riq}LI), †, poultice, *KAR.* 195, 24. Weak hair, †, bind on head, 10 shekels, *CT.* xxiii, 33, 10.

(6) (^{is}*riq*ŠE-LI, *kiškirānu*, "seed of the pine" (with variants *kirkirānu*, *gilkirānu*, *D.* 215, 96) occurs in *MT.*: *Stomachic*, probably, †, drink in beer, *Kū.* ii, ii, 34 (^{riq}ŠE-LI). *Jaundice*, drink alone in beer, *Kū.* iii, iii, 8 (^{riq}ŠE-LI). Some form of strangury, bray with heliotrope, black saltpetre, and ostrich-egg shell, drink in squeezed grapes, *AM.* 59, 1, 26 (^{riq}ŠE-LI). The powder (*ZID* ŠE ^{riq}LI) to be sprinkled alone on a thorn-fire, allowed to enter his fundament (*ūr-šū*) and nostrils to make him cough, for some lung-trouble, *AM.* 54, 1, 8.

Here ŠE certainly suggests the seed: Pliny (*NH.* xxiii, 74) says that the pine-nuts are slightly bruised and boiled down, the decoction being used for blood-spitting, while the kernels are salutary for the kidneys and bladder, having a diuretic effect.

^{is}ŠE-Ū-KU is a parallel (*terinnatu* "seed of the fir"). Like ^{is}AN-NA-Ū-KU and ^{is}PA-Ū-KU, it is given the value of *š(z)i(p)patu*, which at first sight might seem to be the Syr. *zephtā* (Arab. *zift*) "pitch", but I am now inclined to doubt it. *Kirkirānu* is cognate to the Heb. *kikḳār*, a round loaf, a weight (cf. Meissner, *MVAG.* 1913, 2, 36: *Kū.* 86). For this word "Cypresszapfen" has been suggested, but I am inclined to think that it means the seeds in the cones, and not the cones themselves; for one thing, ŠE means "corn", "grain", and, for another, the ^{riq}ŠE-LI are prescribed in *MT.* without any further definition.

In De Genouillac, *ITT.* 5, 6956, we find 20 *ga* of ŠE-LI mentioned with 15 *mana* of ^{is}*zabalum*, 5 *mana* of ^{is}*surme*, and MAŠ.BI . . . (cf. the receipt in the Umma-text, Deimel, *Orntl.* 15, 1925, 55). It is possible that even *burašu* may take on some special meaning of this kind: note *VAT.* 72, 1, "2 *ga* of honey, 5 *ga* of *karšu*, 5 *ga* of *burašu*," where, since we have the mention of honey it might be proper to quote *VK.* 464: "The seeds of this [the stone pine] and the cluster pine are eaten throughout Italy, both by the poor and rich. They are as sweet as almonds, but partake slightly of a turpentine flavour." *PC.* xxv, 431, says that "the *P. pinea*, or stone pine, produces seeds, denominated *nuclei pineoli*, which in France and Italy are used at dessert, and even in the time of Pliny were preserved in honey, a custom continued in Spain to the present time, the sweetmeat called *turonne* being a mixture of honey and the seeds of the pine". Pliny (*NH.* xv, 9) describes the "pine-nut" as containing a number of small kernels, those of the variety known as *pityis* being boiled in honey by the Taurini. *IB.* 1417 mentions the remedies from pine-cones.

2. (^{is})(^{riq})LI-PAR, *šihu*, *šihu* "white *burašu*", *pin blanc*, *Pinus Halepensis* Mill.

Besides the simple ^{is}LI, *burašu*, there is this form of pine which Meissner (*MVAG.* 1913, 2, 36) rightly identified with the Syr. *šihā*, ἐλάτη (Septuagint, *PS.* 2610; according to Dozy, 798, the Arab. *šūh*, *pin*, *sapin*: *FJ.* iii, 13 makes *šūh* *Abies cilicica* (Ant. et Ky.) Carr.). That it is closely

allied to the pine is clear from the word ¹⁹riqšE-LI-PAR, given as *kiškirān buraši* (Meissner, *ib.* 17, 23); but that there may be a variation in its meaning is also clear from the group (¹⁹ER)IN.SUD, a cedar (*ib.* 21, 43) (*p.* 286). The probability is that it is the White Pine,¹ as given in the heading above.

It is used thus in *MT.* :

Simply: *ext.*: *Bruise*, with fir-turpentine, pine-turpentine (†(?)) in yeast, *AM.* 82, 2, 8.

Int.: *Lungs*, with pine-turpentine, †, drink, *AM.* 83, 1, 19 (+ 76, 4). *Stomach*, alone, [drink] in beer, *Kū.* i, ii, 12. Prob. *urinary* with pine-turpentine, bray, drink in beer, *KAR.* 155, ii, 8.

Enema or *suppository*: in one of three *mašqāti* as enema with pine-turpentine, †, *AM.* 41, 1, iv, 3: as suppository, with pine-turpentine, †, pounded and sifted (filtered), in fat, *AM.* 94, 2, ii, 7.

Quantity: 2 shekels, *AM.* 90, 1, iii, 8.

C 1. (¹⁹riq)GAM-GAM, *kukru*, fir-turpentine.

2. ¹⁹ū-KU, *ašuhu*, *Abies* (prob. *cilicica* fir, Ant. et Ky.).

3. ¹⁹Mešri, similar, but probably the poplar.

(a) ¹⁹GAM-GAM, *kukru*, the second commonest drug in *MT.* after *burašu*, pine, with which it is commonly mentioned. It was at one time identified, I venture to think rather ineffectively, with chicory,² from the similarity of sound (Jastrow, *PRSM.* 1914, 33: *TCPP.* 380: *E.*, xiii, 9: *Bab.-Ass.* ii, 305: and even in Meier's *Die Ass. Beschw. Maqlū*, 1937, 41).³

Sumerian has three forms: ¹⁹riqKUR-KU, (*D.* 215, 42): ¹⁹riqGUG-GUG (*ib.* 85): and ¹⁹riqGAM-GAM(-MA) (*ib.* 92). *Kukru* is once written *ku-ku-ru* (*CT.* xvii, 38, 39); three drugs of this kind occur on a tablet of the Agade period (De Genouillac, *ITT.* ii, 2, *p.* 45, no. 5766) ¹⁹qšu-me, ¹⁹gúg-ru-um, ¹⁹ka-x-im-lu-num. Cf. also Thureau-Dangin, *ITT.* i, no. 1330, and De Genouillac, *ib.* v, 3.

Note the following important passage in *Maqlū* (Tallqvist, vi, 35 ff: Meier, vi, 37 ff.):

(37) *Šiptu. riqKukru riqkukru* (38) *riqkukru ina šadāni¹ ellūti¹ quddušuti* (39) *šihrūti¹ tirhi ša eniti* (40) *šihrūti¹ i¹terinnāti* (i.e. ¹⁹šE-Ū-KU¹) *ša qašdāti* (41) *alkanimma ša ame¹kaššapi-ia u sinni¹kaššapti-ia* (42) *dan-nu GAZ-A* ⁴ *rikissa* (43) [*u*] *mimma mala tepuša nutir ana šāri*: "Incantation. O *kukru*, *kukru*, *kukru*, in the pure holy mountains children thou hast begotten on a vestal, the children, the fircones, on the sacred prostitutes⁵; Come, and of my sorcerer and sorceress . . . ⁶ [and] whatever (sorcery) she (ye, they) have wrought we will turn to wind.⁷" Here *terinnatu* is written ¹⁹šE-Ū-KU¹, lit. "grain, seed of the *ašuhu*",

¹ It can hardly be the *Pistacia Terebinthus* L. (see *p.* 253), in spite of the fact that the Chian turpentine, which is obtained from this, is "of a white colour inclining to yellow" (*VK.* 563: cf. *FJ.* ² iii, 42).

² I think Langdon's "chickpeas" must be wrong (*JRAS.* 1925, 719).

³ With *terinnāti¹* "Tannenzapfen" three lines further on!

⁴ Or *kal nu-hipā*.

⁵ Meier translates "Ihr kleinen *tirhu*-Gefässe der Priesterinnen Ihr kleinen Tannenzapfen der Hierodulen".

⁶ Tallqvist: "ihre Beine insgesamt wollen wir brechen."

⁷ Better, I think, than Meier's "haben wir zu Wind gemacht".

which, as will be seen later, is the fir. The det. ^{ria} should long ago have ruled out the ridiculous "chicory", even if the word itself (^{is}šE-Û-KU) did not. The invocation to the *kukru* as being prob. the parent of the "grain of the fir-tree" is a definite indication of the connection; a parallel to this is the Aram. *b'nāth. 'arzā* = the Arab. *ḥabb al-šanaubar* (*FJ.*² iii, 43). In jewellery the word *terinnatu* is used apparently for ear-rings (*TA.* 25, iii, 55, 59, 66), made of ^{aban}šĀR.GUB.BA, pyrites, doubtless in the shape of fir-cones, made in a granulated material (*cf.* Meissner, *Suppt.* 102, and *DACG.* 90). Actually the word *terinnatu* suggests the Syr. *turânîthâ* (not cypress but acacia, *FJ.*² ii, 380). I would suggest that the *kukru* here is not intended as the fir-tree itself, but the sap or turpentine¹ likened to semen as the creative force in producing the "children on a vestal", i.e. the fir-cones on the tree. I may add that *enîtu* is a word also used of the laurel (*p.* 299). The root is probably *karâru*, similar to that of *kirkinānu*, *p.* 261.

It might be well to break off for a moment here to consider the exact purpose of these medico-magical texts of *Maqlû*, which were written for those suffering from sorcery, from which it would appear obvious that the patient is evincing actual physical signs of such an attack. I submit that this is simple colic in several cases: e.g. the patient in Tablet VI strives to turn their machinations to wind, and thus be freed: (32) "[...] her sorcery to storm-wind, her words to wind, (33) let her sorcery [be (?) bl]own away like straw (34) [may] they... her like ashes, (35) may her sorcery be softened [like the bri]cks of a wall, (36) of my [...] may the bond of its stomach be freed." This, in connection with the quotation in the preceding paragraphs above, forms very strong evidence for this suggestion and, if so, we can compare the employment of fir-turpentine as a stomachic.

To continue with ^{ria}GAM-GAM:

^{ria}GAM-GAM is described in *BRP.* 14 in the explanation *ḥibišti^{ria}GAM-GAM ša kappê libbû* "the gum of ^{ria}GAM-GAM wherein are *kappê*". I presumed in *JRAS.* 1924, 455, that this referred to the ends of the branches of several species of *Pinus*, which put forth light-coloured shoots in the spring, bearing a likeness to the hand and fingers, which would then be parallel to the Heb. *kaph* (in *kappôth t'mârîm*, huge hand-shaped branches of palms, Lev. xxiii, 40). I am inclined to think now that it might again mean the fir-cones, on the analogy of the Heb. *kaphîr* "knop", but there is no authority for this, and it must be pointed out that *kappê* is not mentioned in the group in Meissner, *MVAG.* 1913, 2, 16, 5-7, where *terinnatu* is the equivalent of ^{is}KUR (= šE)-Û-KU and ^{is}NUMUN-Û-KU, the latter also being represented by *zir ašuḫi*.

Consider, next, the use of *kukru* in *MT*. In general we find it used ext. for eyes, ears (on wool), teeth (on wool), hæmorrhoids, feet or legs, breast and lungs, and as an application to the end of the penis in gonorrhœa, and on bruises; in fumigation for ears; in enemata: and int. for foul breath, too much saliva, lungs, and "sorcery". The seed is used in ears, the water as a stomach poultice, the powder in a poultice after anointing

¹ In *Maqlû* i, 24, *terinnatu* (^{is}šE-Û-KU) is one of four substances used in washing the hands ceremonially. Cf. also Ebeling, *Albor. Stud.* i, 24-5, *ašuḫu šeggatum ša terinnata iškunu*].

with oil (probably a resin plaster) ; and there is a special " oil ". We have only to turn back to *p.* 258 to compare the uses of pine-turpentine to see how similar they are.

The following are the details of its use in *MT.* :

The form is usually ^{ria}GAM-GAM, but ^{is}GAM-GAM is found :

(1) Simply : ext. : *Eyes*, †, [apply], *AM.* 12, 4, 11 : 14, 3, 3 : †, apply, 16, 1, 11 : †, bind on, 14, 1, 7 : †, a *labku*, 19, 6, 5. *Ears*, †, insert in cedar-oil on wool, *AM.* 33, 1, 24 : †, boil in water, insert on wool, *ib.* 38 : †, bind on, hot, *KAR.* 202, iv, 25. *Teeth*, †, apply on wool, *AM.* 28, 9, 4 : †, [apply], 79, 1, 28. *Temples*, †, bind on, *CT.* xxiii, 41, 2 : 42, 8 (ten carats) : *AM.* 4, 6, 2. *Breast*, †, after cleansing mouth and nose, poultice, *AM.* 26, 3, 3. *Coug h*, †, bind on, *AM.* 50, 3, 8. *Lungs*, †, poultice, *AM.* 55, 1, 8. *Feet*, †, anoint, *AM.* 74, iii, 7 : †, rub, 69, 7, 4 : with pine-turpentine apply, 74, iii, 2. *Anus-trouble*, †, apply in *himetu*-ghee, *KAR.* 191, r. iii, 8. Gonorrhœa, †, bind on in fat to tip of penis, *KAR.* 193, 20. *Swelling*, †, bind on, *AM.* 73, 1, 26 ; *swollen feet*, †, bind on, *ib.* 18. Bruise (*dikiš isnarkabti*), †, bind on, *AM.* 96, 1, 18. Blains (*šiggātu*), †, bind on, *AM.* 32, 5, 8, 10, 12. A blow (*mišitti*), †, poultice, *AM.* 76, 5, 7, 9 : 77, 7, 9. *Hand of ghost*, †, (poultice head), *AM.* 93, 1, 15. Various *poultices*, †, *AM.* 2, 1, 22 : 15, 3, 13 : 22, 2, r. 11 : 25, 4, 6 : 29, 5, 6 : 37, 7, 4 : 72, 2, 6 : 84, 4, iv, 2.

Int. : *Foul breath in mouth*, † (1 grain each), in oil and beer [drink], *AM.* 26, 6, 11. *KAR.* 203, i, 67. *Too much saliva*, †, *AM.* 31, 4, 19. *Lungs*, † (?), drink, *AM.* 45, 1, 7. *Sorcery*, with 31 others, drink, *AM.* 89, 1, 5.

Fumigate : *Ears*, †, *AM.* 33, 1, 31, *dup.* 35, 1, 7, and 38, 2, iv, 9.

Enema, †, *AM.*, 43, 6, 6 : 56, 1, 10, 14 : 94, 2, 7, 9 : *KAR.* 157, r. 14.

Quantities (cf. above) : 1 šú, *AM.* 41, 1, 25 : $\frac{1}{3}$ qa, 17, 8, 3 : [10 shekels], 42, 2, 9 : 57, 3, 9 : 10 shekels, *CT.* xxiii, 45, 8 : $\frac{1}{3}$ ma(-na), *AM.* 43, 5, 9.

(2) *Seed* : *Ears*, alone, *AM.* 38, 4, ii, 11.

(3) *Water* : TU (bowels), with water of dates, poultice, *AM.* 43, 1, ii, 9.

(4) ZID (powder) : Weak hair, etc., 10 shekels, †, bind on, *CT.* xxiii, 33, 10. Bruise (*dikiš*), anoint with oil, poultice, *AM.* 96, 1, 9 : After childbirth, 1 qa of ZID ^{is}GAM-GAM, †, poultice, *KAR.* 195, 24. Cf. *KAR.* 192, iii, 54.

(5) *Oil* : anoint, *AM.* 22, 2, r. 8 : *AM.* 45, 1, 4, 8 : prob. [anoint], *AM.* 76, 2, 7. (For the medical uses of turpentine see *p.* 259.)

^{šam} ^{ria}GAM-GAM is included among the *šam ašî* "drug for hunger" (*Pl.* 29, K. 4566, 28, and *KAR.* 203, iv, 6).

What is noticeable is that it is used in one recipe for foul breath. Inasmuch as Chian Turpentine (*Pistacia Terebinthus* L.) is chewed by the inhabitants of Turkey and Persia to sweeten the breath, like mastic (*PC.* xxv, 433), it would be for us to consider whether ^{ria}GAM-GAM is not a more valuable turpentine than merely that of the fir. The *burašu* was twice as cheap as ^{is}GAM-GAM in Nebuchadnezzar's time (a shekel would buy 20 $\frac{2}{3}$ qa of ^{ria}LI, and only 10 of the ^{ria}ku-uk-ru, Scheil, *RA.* 1921, 97) : the turpentine obtained from *Pinus sylvestris* (and other species) is the commonest sort, while at the other end of the scale is the Chian turpentine

(*Pistacia Terebinthus* L.), more costly than the other kinds, since a tree over 50 or 60 years old yields no more than 10 to 12 ounces annually (*BC. xxv*, 431). Indeed, it is possible that we have a further clue in the Arab *kamkām*, possibly our ^{ria}GAM-GAM, which *IB. 1431* and 1973 give as terebinthine, although some say that it is the gum of *Pistacia lentiscus*, mastic, and others its bark. Possibly our word survives in Pliny's *can-camum*, a gum-resin (*NH. xii*, 44).

Nevertheless, there are grave objections to this identification, for we already have ^{is}LAM-GAL as *P. Terebinthus* (*p. 253*) and we have ^{is}ŠE-Û-KU, with which ^{ria}GAM-GAM is closely connected in the same text, given as "seed of the *ašūlu*-fir", i.e. fir-cones.

Moreover ^{is}ŠE-Û-KU, with the meaning fir-cones, could not represent the *P. Terebinthus*, for this latter has none. It is obvious, therefore, that we shall have to adhere to our meaning "fir turpentine" for ^{ria}GAM-GAM.

From this we can go on to *ṭiru*, *ṭuru*, and *turû*. The Sumerian forms give ^{ria}RIM (= *šaḥatum* and *turû*, *CT. xii*, 25, ii, 45, 46) : ^{is} ^{ria}RIM (= *tu* (?), *v. ṭi* (?)-*ru*, Meissner, *MVAG. 1913*, 2, 18, 30). Presumably this is the same as ^{šam} ^{ria}RIM, explained as *šammu ša lib* ^{ria}ŠE-LI-PAR (*Pl. 34*, K. 4169, 7) "drug from the *Pinus Halepensis*": *Pl. 45*, i-ii, 29, gives *ṭi-ru* = *in-zu* . . . , which is perhaps to be restored from the explanatory text *BRP. 14*, ^{ria}RIM : *tu-ri* : *in-ša-ru-û* : *ḫi-bi-ṣ-ti* ^{ria}GAM-GAM *ša kap-pi-e lib-bu-û* ("gum of the fir wherein are *kappê*", see *p. 263*), *inšarû* being the Aram. 'uṣāra (?) "sap": in Langdon, *Bab. vii*, 1913, pl. iv, K. 4369, ii, 12, ^{šam} ^{ria}ṭi-ri = ditto (i.e. *urḡitu*) *a-ṣu-u* "green coming forth". Hence the concordant equivalence of ^{šam} ^{ria}RIM, ^{is} ^{ria}RIM, and ^{ria}RIM is certain, the values being *ṭiru*, *ṭuru*, *turû* "the drug of the *Pinus Halepensis*", "gum of the fir", "sap", "green coming forth". The Arab. *ḡirw* "lentiscus, mastic" (*IB. 1431*) might represent *ṭiru*, *ṭuru*, except for the Heb. *šōrî*, which appears to be the cognate to the Arabic; at the same time, *ḡirw* is described as a gum like that of the terebinth and called *kamkām* (see above), while the Heb. *šōrî*, according to *FJ. i*, 196, is not mastic, but storax. Meissner suggested the Talm. *ṭurâ*, *MVAG. 1913*, 2, 36, a bitter herb, Jastrow, *Dict. of Targ.* 526.

^{ria}RIM is found in *MT.* thus :

(1) Simply : *ext.* : *Eyes*, †, [apply], *AM. 16*, 1, 16 (*cf. 8*, 6, 6). *Ears*, †, [insert], *AM. 34*, 1, 15, 34. After cleaning mouth and nose, †, poultice, *AM. 24*, 5, 7. *Teeth yellow, etc.*, boil alone with honey [and apply (?)], *AM. 31*, 6, 13. "The top of the heart burns" (*riš libbišu BIL*), poultice, *AM. 39*, 1, 4 ($\frac{1}{3}$ *qa*). *Lungs*, †, poultice, *AM. 54*, 1, *r. 7*. *Chilblains*, †, bind, *AM. 32*, 5, 13. *Asida* (footsole), alone, dry, pound, steep in rose-water, bind, *AM. 75*, 1, iv, 17. *Swellings*, prob. alone (. . . ^{ria}RIM), dry, pound, *AM. 73*, 1, ii, 2 (*cf. †, KAR. 192, r. 2*, 11).

Int. : † (?), *drink*, *AM. 57*, 6, 4.

Fumigate : (?) *Nose*, †, [^{ria} (?)RIM], *AM. 64*, 1, 21 (*dup. 55*, 8, 1, and *sim. KAR. 202*, 37). *Ghost*, †, *AM. 99*, 3, 10 (*dup. AM. 33*, 3, 13, *etc.*).

Enema : *AM. 41*, 1, iv, 17 : †, *KAR. 157, r. 16*.

Quantities : $\frac{1}{2}$ *pitqi*, *AM. 41*, 1, iv, 17 : 1 *šû*, *ib. 24*.

(2) *Fat* (*lipû*) : *Swollen stomach*, †, "put to anus," alone, in flour of roast corn, uncertain, but apparently *ext.*, *Kü. ii*, i, 22 : $\frac{1}{3}$ *qa* ^{ria}RIM steep

in . . . , spread on a cloth, spread roses and galbanum, bind, *AM.* 54, 1, r. 7.

This completes our information about ^{ria}RIM which would appear to be the gum of the fir, if not of one of the species of terebinth. We can go on the ^{ia}ašuhu, the tree from which the fir-turpentine comes.

2. ^{iš}Û-KU, *ašuhu*, *Abies* (prob. *cilicica* Ant. et Ky.) fir.

^{ria}GAM-GAM, *kukru*, has been shown above probably to be the turpentine and resin of the ^{ia}ašuhu and, although we have seen that the value of ^{ria}GAM-GAM was twice that of the *burašu* (pine), all the other evidence points to the *ašuhu* being a common species rather than *P. Terebinthus*.

^{iš}Û-KU has the values (a) apparently of *amalu* (vR. 47, 18, b) : (b) *ašuhu* (*D.* 455, 97, b, c) : (c) *lammu* (*CT.* xviii, 3, 20) : and (d) ^{šam}mehru (*p.* 267). *Lammu* has already been discussed (*p.* 248, "plane," etc., but equally probably something of the terebinth species) : *mehru* in its turn must have a distinct meaning (*p.* 247) : *amalu* is practically a *hapax legomenon* : *upattin qinnê amališ izqap*, which Langdon (*Bab. Wisd.* 58) translates : "he has upheld [my neck] like an mountain, he has set upright like a cedar." *Patānu* is a word of uncertain meaning : in the Commentary (see *ib.*) *qinnê* = *šad* (*kîn* ?)-*û*.

We may therefore expect some difficulty in identifying *ašuhu* exactly, but it certainly must be the Aram. *aššuḥa* (Ball, *PSBA.* 1887, 127), which is taken to be *Abies cilicica* Ant. et Ky. (*FJ.* iii, 39) which grows in the Amanus and at Mar'ash. *Ašuhu* occurs in a pre-Sargonic text (De Genouillac, *ITT.* no. 9188) : it grew in groves (^{ia}kirî, Meissner, *MVAG.* 1913, 2, 20, 7), and groves of ^{ia}ašuhi are mentioned as far back as Samsu-iluna (Strassmaier, *Warka*, 48, B. 78 : Peiser, *KB.* iv, 31) : note the *nâr ašuhi* "canal of *ašuhi*" which Immeru dug (Meissner, *Altb. Privatr.* 22). Gudea cut "great ^{iš}Û-KU",¹ along with ^{ia}tulubum (planes) and ^{ia}zabalum (junipers) in the mountains of Ibla (*ISA.* 109, v, 56 : cf. 155, xv, 32, where they are mentioned with ^{ia}erinu (cedars), ^{ia}šurme (cypresses), ^{ia}zabalum (junipers), ^{ia}tulubum (planes), and ^{ia}eralum (see *p.* 286)). Their length was 13 cubits (presumably after cutting) (De Genouillac, *ITT.* v, *p.* 4) : third Dyn. of Ur, 12, 11, and 7 cubits (Allotte de la Fuye, *RA.* 1919, 4) : an OB. letter (Kraus, *MVAG.* 1931, *Altb. Briefe*, no. 1, *p.* 3) mentions sixty ^{ia}ašuhi-trees of 1 GA-NA or 2 GA-NA length, and 1 or 2 handsbreadths thick. In early Assyria it is used for doors (Adad-nirari, *KAH.* 1, 6) and in late Bab. times for building (*Neb.* ix, 5, etc.). The value of the ^{iš}Û-KU in early times was at the rate of 12 for a shekel, and of the ^{iš}Û-KU-UŠ ("male fir") at 8 for a shekel (*TURk.* *p.* 14 : cf. time of Šulgi, *ib.* no. 121, iii, 8).

The mention (by weight) of 10 *mana* of ^{iš}Û-KU (along with 10 *mana* of ^{ia}zabal (juniper)) in the reign of Rim-Sin, suggests a resin (C.-F. Jean, *RA.* 1927, 66).

In *MT.* ^{iš}Û-KU is rare : we find, however, PA ^{iš}Û-KU, followed immediately by ^{ia}GAM-GAM (*KAR.* 208, 13), for what use is not clear, but the next recipe is a short one for KU-GIG "anus-trouble". The distinction made here between ^{ia}GAM-GAM "fir-turpentine" and the PA of

¹ Cf. *TURk.* 121, iii, 7, of Šulgi's period, where the ^{iš}Û-KU-GAL is mentioned.

the fir is interesting. This latter product is to be found in the important group devoted to this tree (Meissner, *MVAG.* 1913, 2, 16, ii, 3-7): ¹⁵Û-KU ŠÁR-RA and ¹⁵Û-KU-KI-ŠÁR-RA = *gišrintu* (?): ¹⁵KUR (= ŠE, p. 263)-Û-KU, ¹⁵NUMUN-Û-KU = *terinatu*: ¹⁵NUMUN-Û-KU = *zir ašuḫu*, followed by another group, ll. 8-13: ¹⁵AN-NA-Û-KU, ¹⁵ŠE-Û-KU, ¹⁵PA-Û-KU = *š(z)i(p)patu*: ¹⁵PA-Û-KU = *artu*, ditto *ašuḫi*: ¹⁵BIR (?) -GAM (?) -ŠIM-MAT-Û-KU ¹ = *šubabu* (note a parallel for ¹⁵AN-NA-Û-KU in ¹⁵AN-NA-GIŠIMMAR = *sissinni*, Br. 456).

Our outstanding difficulty in identifying ¹⁵*ria*GAM-GAM, *kukru* (in contrast to *ašuḫu*), is that its close parallel ¹⁵LI, *burašu*, makes no such definitely contrasted distinction between the meanings for the wood, turpentine, and resin, as exist (according to our identification) in the case of ¹⁵GAM-GAM and *ašuḫu*. Yet our evidence shows that ¹⁵GAM-GAM has a *hibišti* (gum), with all the concomitant evidence given on p. 263. Indeed, in the early text quoted on p. 262 it may be that *gugrum* is actually the tree; but this word certainly ceases to have that significance as time goes on. It really works out to this: that ¹⁵*ria*GAM-GAM must be very close to the turpentine of the fir, although it is possible that we may have to identify it more closely with some gum distinct from that of *A. cilicica*.

3. ^{3am}*Mehru*.

It is an equivalent of ^{3am}*ašuḫu*, some kind of fir (p. 247). In the large inscription of Ashurnasirpal which we found in the Temple of Ishtar at Nineveh in 1930-1 (*AAA.* xix, 111) the king says: "50,000 troops I assembled; to the land of Mehri I went; Mehri to its whole extent my hands conquered. Beams for Ishtar of Nineveh, my lady, to roof E-maš-maš and to roof my palaces I cut down." His *Annals* (*AKA.* 374, iii, 91) are still more explicit: "To the land of the *mehri*-trees (*mât* ¹⁵*me-iḫ-ri*¹) I went, and the whole of the land of *mehri*-trees I conquered. I cut down beams of *mehri*-wood, and unto Nineveh I brought them." Tukulti-Ninurta I carried off 28,800 Hittites from the western side of the Euphrates, and thereafter conquered the Babḫi and Uqumani as far as Šarnida and Mehri. The large number of Hittite prisoners taken suggests a large population, to fight which Ashurnasirpal's force of 50,000 must have been necessary, that is, if these statements are not exaggerations.

Sidney Smith would put the land of Mehri in Persia, along the Zanda Rud (*Bab. Hist. Texts* 17): Landsberger and Bauer (*ZA.* 1926, 75, quoting *KAH.* 2, no. 84, 24 ff.) take the land of Namri, which lies on the way, to be Pusht-i-Kuh. But I cannot agree that Mehri lies in Persia: Tukulti-Ninurta's mention of Hittites almost in the same breath indicates a locality north-west or west of Assyria.²

But Smith's suggestion for the meaning of the tree *mehri*, that it is "alike" or "equal" (i.e. on both sides) with reference to the appearance of the poplar is ingenious, and may be right (although such a description applies equally to the larch or pine): the villages in the Hittite country

¹ Apparently variant ¹⁵BIR-GAM-MA-Û-KU in Meissner, *MVAG.* 1913, 2, 17, 13 (= *šubabû*).

² Cf. Layard, *Nin. and Bab.* 114, "unless the levers [for moving the big bull] were brought from a considerable distance, they must have been of poplar, no other beams of sufficient length existing in the country [Assyria]."

round Carchemish usually have each their own little grove of poplars, numbering from fifty to a hundred and fifty, from which they draw their supply of beams for roofing. The letter *ABL.* 467, 25, mentions *ša meḫri šina raqqa adanniš* "of the *meḫri*-trees, they are very thin" (*raqqa* appears to mean "fine", of female *niqibtu*-gum, *BRP.* 37, 12). The tree occurs in an omen—between the *dapranu* (juniper) and the *šarbatu* (willow) (*TR.* ii, 23, 4–6).

(*Qan meḫri*, *Pl.* 47, 35503, 15–17, and *P.* 49, 93806, 10–12, and *ABL.* 455, 15, is different. Is [^{šam}]ⁱIM-İH-RU a form of it (*KAR.* 203, x, 8) ?)

- D. 1. ⁱZA-BA-LAM, *zabalum*, *Juniperus excelsa* M.B., juniper.
 2. ^{šam}RIM, *supalu*, manna.
 3. ^{šam}Ašušimtu, ^{šam}šašuntu, manna when excreted by the *gaqqadānu* (cicada).
 4. (ⁱ)(^{ra})DUP-RA-AN, *dapránu*, *Juniperus drupacea*, Labill., juniper.

1—3. ⁱZa-ba-lum is mentioned by Gudea (*Cyl. A.* xv, 30–1) in proximity to cedar, cypress, plane, and ⁱeralum (cf. also xii, 5). Scheil (*RA.* 1921, 54, 26, 3rd Dyn. of Ur) gives ⁱza-[ba]-lum. Its product is mentioned in Rim-Sin's time (C.-F. Jean, *RA.* 1927, 66, 12) as "10 mana of ⁱza-ba-al", and about the same period (De Genouillac, *ITT.* v, no. 6956, p. 4) "15 mana of ⁱza-ba-lum". The wood does not appear to have been used in later times. As ⁱza-ba-lum it appears in a Ras Shamra list (Thureau-Dangin, *Syria*, 1931, pl. xlvj).

ⁱZA-BA-LAM is recognized as a Sumerian form (*CT.* xix, 39, K. 9888) in a Sumerian column containing in the preceding line [ⁱ]ⁱŠUR-[MAN], and on *CT.* xvii, 38, 39–40, we find . . *su-pa-lu* as equivalent for . . ZA-BA-LAM. In *CT.* xviii, 3, 22, *su-pa-lum* = ⁱerinu, and in the vocabulary on *Pl.* 45, K. 4152, iv, 7, ^{šam}su-pa-[lu] precedes ⁱti-ia-[ru] and ^{šam}li-ia-[ru].

We have to consider certain variations of these words obviously with different meanings. ⁱZA-BA-LAM is the tree: ^{šam}ZA-BA-LAM is distinct from ^{šam}RIM (= *supalu*) (*p.* 269). ^{šam}*Supalu* will presently, I think, be seen to have the value of manna; ⁱ*supalu* is presumably the tree.

Philologically ⁱ*zabalum* must surely be, by metathesis, the Arab. *lizzāb*, *Juniperus excelsa* M.B., which grows in the Syrian desert, the Lebanon, Anti-Lebanon, and Palestine (*FP.*² ii, 801).

ⁱZA-BA-LAM occurs in *MT.* :

Ext. : †, *AM.* 12, 12, 4 : †, 77, 2, 1. Bind on, †, *AM.* 15, 3, 12.

Int. (?) : Hand of Ghost, with affection of the temples, †, in *kurunnu*-beer, *KAR.* 188, r. 10.

ⁱSu-pa-lam occurs in *MT.* :

Ext. : (bind on), †, *AM.* 98, 3, 8 : Temples, with *dulcamara*, dry, pound, strain, *CT.* xxiii, 40, 7 : head, [^{šam}(?)]*supalu* in almond-oil and rose-water steep, bind on, *CT.* xxiii, 30, 60. In ritual ⁱsu-pa-li, *BBR.*, no. 75, 7, with cedar, cypress, almond, *qanê ballukki*, etc., which would show that it is a sweet gum (or similar) for incense.

Consider first the difference between ⁱZA-BA-LAM (ⁱ*supalu*) and ^{šam}*supalu* : *Pl.* 46, K. 4184, 1–4, r. 1–7 give :

Obverse :

(b) <i>šam</i> šá-mi qaq-[qa-ri]	[<i>šam</i> su-pa-lu] ^{1, 2}
(c) <i>iš</i> hal-bi e-si-e	<i>šam</i> [su-pa-lu] ²
(d) <i>šam</i> IN-NU-UŠ	<i>šam</i> [su-pa]-lu ²
(e) <i>šam</i> RIM	<i>šam</i> su-pa-lu

Reverse :

(f) <i>šam</i> NAM-TA-È	<i>šam</i> su-pa-lu
(g) <i>šam</i> KI- ^a ŠIŠ-ŠIŠ-KI	<i>šam</i> su-pa-lu
(h) <i>šam</i> NIGIN	<i>šam</i> su-pa-lu
(i) <i>šam</i> gab-lu-lu	<i>šam</i> su-pa-lu
(j) <i>šam</i> AN-ŠIR-LU	<i>šam</i> su-pa-lu
(k) <i>šam</i> NIM-TA-È	<i>šam</i> su-pa-lu
(l) <i>šam</i> su-pa-lu	.....-lu

Again, *Pl.* 24, K. 4412, iii-iv, 1 ff., and *Pl.* 37, K. 4417, 1-2 :

<i>šam</i> .....	.....
<i>šam</i> .....	.....
<i>šam</i> a (?). ....	.....
<i>šam</i> kak-[ku-šak-ku]	.....
<i>šam</i> ša-šu-um-tú	<i>šam</i> šá-[mi]
<i>šam</i> a-šu-si-tú imeri ³	<i>šam</i> šá-[mi]

Again, *Pl.* 37, 81-2-4, 269 :

..... šá eqli	<i>šam</i> išid
....-[MA]N šá eqli	<i>šam</i> [,,]
....-MAN šá eqli	<i>šam</i> išid a-la-me-e
.... ŠI-RÚ GIŠ.GI	<i>šam</i> išid GÜ[R] ₅ (šakiru)
[<i>šam</i> NI]M-TA-È	<i>šam</i> bu-uk-la-n[u]
[<i>šam</i> gur (?)]-ga-ru-ú	<i>šam</i> su-pa-[lu]
	<i>šam</i> a-zal-lu-[u]

And finally, *CT.* xxxvii, 31, 109860, iii, 26-36 :

<i>šam</i> šá-mi GIŠ-TIR	<i>šam</i>]a-sir-bi-tu
<i>šam</i> šá-mi ZID	<i>šam</i> su-pa-ru (!)
<i>šam</i> šá-mi qaq-qa-ri	<i>šam</i> ditto
<i>šam</i> šá-mi e-si-e	<i>šam</i> ditto
<i>šam</i> tar (= hal ?)-bi e-lu ⁴ ...	<i>šam</i>
<i>šam</i> I-NU-UŠ	<i>šam</i>
⁵ <i>šam</i> si-e (?)-[du]	<i>šam</i> mal (?)-...
<i>šam</i> šá-mi eqli (?)	.....
<i>šam</i> šá-mi šir-pi	.....
<i>šam</i> šá-mi šil-qi	.....
<i>šam</i> šá-mi šil-qi	.....

¹ Note *šam*su-pa-[lu], following *šam*šá-mi *iš*ú (?)-GIR (gum arabic ?), *Pl.* 40, K. 14108, 8.² These occur *CT.* xxxvii, 26, 108859, ii, 26-7.³ Whether, as we should suspect (with Meissner, *MVAG.* 1904, 3, 28), this is [i]m-tum, is uncertain. I re-examined both texts and both are apparently *imeru*. *Ašušimtu* occurs also *CT.* xi, 45, iv, 25.⁴ *Su* ?⁵ From *CT.* xxxvii, 27, ii, 25, *šam*si-'du preceding *šam*gablu and *šam*AN-ŠIR-LU.

That "*supahu* is "manna" I suggested in *AH.* 161, 268, and followed this up in *AJSL.* 1937, 228, adding *qudratu* and several others. We can now consider how many kinds of manna are probable ¹:

(1) In *P.* 759 manna is given as "a concrete saccharine exudation . . . from the Stems of *Fraxinus Ornus* L., and *F. rotundifolia* Lam., and probably other forms of this; cultivated chiefly in Sicily". It is a mild laxative, apt to cause griping in large doses. The best occurs in pieces 3 inches or more in length, about an inch in diameter, and $\frac{1}{4}$ inch or more in thickness. "The crystals deposited by cooling a hot spirituous solution constitute a peculiar variety of sugar" (*PC.* xiv, 1839, 386). According to W. Smith's *DB.* ii, 230, manna drops from these trees in consequence of a puncture made by an insect resembling the locust, but distinguished from it by having a sting under its body.

(2) Smith, *ib.* 229, says that the substance now called manna in the Arabian desert through which the Israelites passed, is collected in the month of June from *Tamarix gallica*. According to Burckhardt (whom this authority quotes) it drops from the thorns on the sticks and leaves with which the ground is covered, and must be gathered early in the day, or it will be melted by the sun (*cf.* also Gmelin, *Histoire*, ii, 356). The Arabs cleanse and boil it, strain it through a cloth, and put it in leather bottles, using it like honey or butter with unleavened bread. The tamarisk gum is supposed to have been produced by the puncture of a small insect (*Coccus manniparus*: v. Frederick, *Trans. Lit. Soc. Bombay*, 1819, i, 251). "Der honigartige Saft (of the *Tamarix nilotica* v. *mannifera* Ehrbg.) tröpfelt auf den Stich des *Coccus manniparus* Ehrbg., der Manna-Schildlaus im Juni aus den jungen Trieben" (Fonck 13, quoted *FJ.* iii, 402: *cf.* *Cambridge Entomology* ii, 597).

(3) A third kind of manna (called *taranjubin*) comes from the '*aqul*, the camel-thorn, the *Alhagi maurorum*. The genus *Alhagi* contains two species, *A. maurorum* and *A. desertorum*, both species being called *oosh turkhar* "camel's thorn". The former alone yields manna, which in Bokhara is used as a substitute for sugar (*PC.* xiv, 1839, 386), as it was also at Basrah (Frederick, *op. cit.*, 252) (see also Rauwolff, *Travels* i, 84).

(4) A fourth manna comes from the dwarf oak (Chesney, *Narr.* 501): "In the hilly district of Looristan . . . we find it on several trees of the oak species . . . From these the manna is collected on cloths spread beneath them at night, and it then bears the form of large crystal drops of dew" (Wellsted, *Travels in Arabia* ii, 48). "Niebuhr observed that at Mardin, in Mesopotamia, the manna lies like meal on the leaves of a tree called in the East *ballôt* and *afs* or *as*, which he regards as a species of oak (*ballût* is the dwarf oak, *p.* 249). The harvest is in July and August, and much more plentiful in wet than in dry seasons. It is sometimes collected before sunrise by shaking it from the leaves on to a cloth, and thus collected it remains very white and pure. That which is not shaken off in the morning melts upon the leaves, and accumulates till it becomes very thick. The leaves are then gathered and put in boiling water, and the manna floats like oil upon the surface. This the natives call *manna assemma*, i.e. heavenly manna" (Smith, *DB.*, l.c.).

¹ There is a good description of manna (with analysis) in Berthelot's *Hist. des Sciences* i, 389.

Mr. John Horne has been so good as to give me the following details (through the good offices of Col. Hoysted, the Secretary of the Royal Asiatic Society): "Manna falls in the mountains of Iraq on the frontier of Persia, in the district of Benjuine (village of Chou-arba) only when there is lightning in the storms of late autumn. Though the fall of manna is general in the district, it can be collected from the leaves of the *afus* trees, which are evergreen, and from the rocks. In the earth it gets lost. It is a creamy paste, and is scraped from the leaves and rocks, boiled with water (after which an almost transparent paste is left for making a kind of sweetmeat). The manna I brought back had not yet been so treated. My informant declared that it was a precipitation from the air."

(5) Other kinds are: (a) the "sheer khisht", "produced in the country of the Uzbeks", said to come from a tree called *gundeleh* in Candahar (*PC.*, *l.c.*). This is called *sherkest* and *sherchista* by Frederick (*op. cit.*, 254 ff.), a kind which purges violently. *IB.* 1380 calls it *šir ḥšk* (from Herat). (b) "Guzunjbeen", "the produce of a species of tamarisk called *guz*" (*PC.*, *l.c.*), supposed to be a variety of *T. gallica* growing on Mt. Sinai, and produced also in Luristan and Iraq 'Ajemi. Frederick (*l.c.*) says that the *gez* of Persia "a dew that fell from heaven in autumn" is from a shrub called *gavan*. (c) "Shukur-al-ashur", a sweet exudation from the *Calotropis procera*, called *zuccarum al-husar* by Avicenna (*PC.*, *l.c.*). (d) "Bed khisht", said to be produced on a willow in Khorassan (*PC.*, *l.c.*). (e) *Manna brigantiaca*, or Briançon manna, from the *Larix europæa* (*PC.*, *l.c.*). (f) perhaps the same as (d): "In the valley of the Jordan, Burckhardt found manna like gum on the leaves and branches of the *gharrob* [willow], which is as large as the olive-tree, having a leaf like the poplar, though somewhat broader. It appears like dew upon the leaves, is of a brown or grey colour, and drops on the ground. When first gathered it is sweet, but in a day or two becomes acid. The Arabs use it like honey or butter, and eat it in their oatmeal gruel. They also use it in cleaning their leather bottles, and making them air-tight. The season for gathering this is May or June" (Smith, *DB.*, *l.c.*).

With this information we can now discuss the vocabularies.

Consider, first, the equivalents for ^{is}*supalu*, apart from its connection with ^{is}*zabalum* as the tree *J. oxycedrus*:

(a) ^{šam}*Šami* *zīd* "drug of meal". This, if the correct explanation, would coincide with the meal-like appearance of the manna on the Dwarf Oak (*p.* 270).

(b) ^{šam}*Šami qaqqari* "drug of the ground". Cf. *p.* 270, which shows that manna may be collected from sticks and leaves on the ground: or, *ibid.*, from cloths spread on the ground; or, *ibid.*, as it drops from the willows (see also under *qudrû*, *p.* 274).

(c) ^{šam}*Halbi ešê* and ^{šam}*šami ešê*. ^{šam}*Esû* occurs in the following quotation from *VAT.* 9000 (*p.* 247).

^{šam} <i>qaṭ-ra-nu</i>	| ^{šam} <i>ḥīl iszu (!)-ni</i>
^{šam} <i>e-su-û</i>	
^{šam} <i>ak-la-bu-u</i>	
	^{šam} <i>ia-ar-ḥu</i>
	^{šam} ,,

^{šam}*Qatrannu* looks like the Arab. *qatirān*, exuding "from the tree called *abhal* [or juniper, or the species of juniper called *savin* . . ." (Lane, *Dict.*

s.v.), the Syr. 'etrânâ, *cedria*, *oleum cedrinum*, i.e. our *hîl 'iserîni* "gum of cedar". *šamAklabû* is unknown: *iarhu* is mentioned in gardens (*'iskirû*) in the Sinjar district ("5 umer of field, *usallu*, and *bît šE.KUL*", a house in the middle of a garden of *ia-ar-hu* alongside the garden of So-and-so," *ADD.* 444, 7 ff.), and also in the district of the towns Sairi and Ḥašanu, where "a *naḥallu* (brook) which flows in the midst of *iarhu*" is used as a boundary mark (*ADD.* 414, 26; cf. r. 2). *šamIarhu* appears therefore to be a plant grown for its produce, but probably a local North Syrian genus; *šamesû* is equally unknown, but our Assyrian *šamḥalbi esê* and *šamšami esê* suggest that it produced a gum-like drug.

The important point here, however, is to note the philological connection of the plant *šamiarhu* with the ordinary Assyrian words *arhu* "(copper) scale", *iarahu* "(iron) scale, colcothar", and *iārahhu* "husk (?)", p. 96 (like *λεπίς* "husk, flake of copper", *DACG.* 97). If we can see in *šamiarhu* "flake-plant", we can compare it either to the flaky tragacanth gum from *Astragalus gummifer* Labill. ("the characteristic of the Syrian Tragacanth is the form of ribbon-like flakes", *P.* 1216) or (perhaps, as well as) to the product of another *Astragalus* (*A. florentulus*, see note on p. 273) from which the *gaz-angabin* manna of Persia is scraped. ("The best manna is known as Flake Manna," *P.* 759.) Indeed, the similarity of the depositing of tragacanth and manna is so marked, that we might well admit an Assyrian confusion between the two, or at least, a comparison: "In the hot months of July and August,¹ particularly after a dewy or a cloudy night, the branches of *A. verus* are found encrusted with tragacanth" (*PC.* xxv, 113, which mentions the "flake or Smyrna tragacanth") with which we have only to compare what is said of manna on p. 271.

Further, the habitat of *A. verus*, as given by *PC.*, l.c. (North Persia, Armenia, and Asia Minor), confirms the view that *šamiarhu* coincides with tragacanth, since it grows in the Sinjar district, and is never found in the Assyrian medical texts (I have no recollection of the tragacanth in Mesopotamia). In any case, it should be added, tragacanth is of little use as a drug other than as a demulcent, or mucilage.

We may then perhaps see in *šamḥalbi esê*, *šamšami esê šamiarhu*, and *šamaklabû*,² the tragacanth and its gum, perhaps partly confused with manna.

(d) *šamIN-NU-UŠ* (less usually *šamI-NU-UŠ*). See p. 39.

(e) *šamRIM* (parallel to, but distinct from, *'šRIM* or (*šam*)*riqRIM* = *tiru*, p. 265). The different values for the sign *RIM* (*illuru* "calyx" (spherical), *paḥāru* "to collect", and *saḥāru* "to go round") suggest a spherical mass or drop (like *NIGIN* on p. 274 in (*h*)), comparable to the value *'šRIM* = *pagratum* "gall" (from the Dwarf Oak, which also provides manna). There is a distinction between even *šamRIM* and *šamZA-BA-LAM* in *KAR.* 202, 2, 35, where *šamRIM* is to be brayed and applied alone, and then followed at once by directions to bind on *šamZA-BA-LAM*.

šamRIM is found in *MT.* thus:

Int.: Mouth or tooth, etc., bray alone, drink in beer, evacuate, *AM.* 36, v, 15 (cf. *PRSM.* 1926, 65): foul breath, alone in oil and . . . , *AM.* 23,

¹ I.e. the month *allanâte*, p. 249.

² Hardly a corruption of *gaz-angabin*?

1, 5. *Stomach*, †, drink, *AM.* 39, 1, 43 : †U, bray alone, [drink] in *kurunnu-beer*, *KAR.* 200, 9 : *stomach-ache*, alone in U-[SA], *Kū.* i, ii, 4. *Loins, etc.*, strangury, †, *AM.* 31, 1, 7 : *strangury*, †, drink, *AM.* 59, 1, 36, 44 : some *urinary* trouble, †, drink, Lutz, *AJSL.* 1919, 80, i, l. 20. *Hinqti* KU-GIG ("retention of anus-trouble"), one of 22, uncertain use, *AM.* 40, 5, 17. For *ašî* (appetite), †, drink, *AM.* 16, 4, 4 (see *RA.* 1929, 70, for dup.). For a woman after childbirth, whose *abunnatu* is "loosed", pour therein with four others, *KAR.* 195, iv, 30.

Quantity : $\frac{1}{3}$ qa, *AM.* 6, 3, 17 : *CT.* xxiii, 27, 15. Note ^{šam}RIM *urqit-su tu-ḥa-ša mē-šû teliqqi 2 šigli iā-giš . . .*, *AM.* 25, 7, ii, 9, paralleled by l. 13 . . . *urqit-su tu-ḥa-ša mē^{pl}-šû šur-at 1 kisal iā-giš . . .* "Of ^{šam}RIM, while it is yet green thou shalt press, take its water, 2 shekels of oil . . ." and ". . . of ^{šam}RIM, while it is yet green, thou shalt squeeze, press its water, 1 carat of oil . . .".

Note, in addition, the drug ^{šam}RIM *ša* (?) *kalab* ^aNIN-GI-ZI-BAR-RA *zir* (?) *tu-û ḥi-bi ina kurunni u iā-giš kaidmanu i-šat-ti* (*KAR.* 203, ix-vii, 20, paralleled by *AM.* 19, 7, 4, ^{šam}RIM *ša kalab* ^aGU-[LA] . . .).

To these we may add ^{šam}supalu :

Ext. : *Temples*, †, dry ^{šam}subalam, pound, apply, *CT.* xxiii, 40, 7. [*Head and breast* (?)], [^{šam}]supalu alone in almond oil and rose-water, bind on, *ib.* 30, 60. *Bruise*, †, *AM.* 76, 2, 12. Uncertain diseases, in oil . . ., alone, [apply], *AM.* 2, 7, 7. . . *Supala*, dry, †, bray, mix in BĀR-GA-oil, *AM.* 87, 3, 8. *Poultice*, ^{šam}supalam, †, Scheil, *RT.* xxiii, 1901, 134.

(In the form ^{šam}ZA-BA-LAM, *ext.*) : *Bruise* (*mišitti*), †, *AM.* 77, 2, 1. *Baldness* (or sim.) with *lepidium*, bind on in beer-yeast, *CT.* xxiii, 25, 34 + *AM.* 2, 1, r. 12. *Poultice*, †, *AM.* 15, 3, 13. Bind on, *AM.* 12, 12, 4.

Now Jastrow (*Dict. Targ., s.v.*) gives the Aram. *suphlē* as "scrapings" (rather than "kernel", Levy, *Neuheb. u. Chald. Wörterb., s.v.*), which is not remote from the means of obtaining manna.¹ But it must be remarked that, while ^{šam}RIM is used chiefly internally (as we should expect manna to be), the prescriptions for ^{šam}supalu and ^{šam}ZA-BA-LAM are external, as though they were a turpentine. Hence, while we may readily see "manna" in ^{šam}RIM, the *ext.* use of ^{šam}supalu in *MT.*, at all events, may compel us to withhold a decision in this latter case.

^{šam}RIM occurs in Langdon, *Le Poème sumérien du Paradis*, p. 194, l. 20, among a list of plants addressed by the god Enki.

(f) ^{šam}NAM-TA-È (also *Pl.* 38, S. 8, c, 6) and ^{šam}NIM-TA-È. Here È must be "that which comes forth", and NIM must be "fly" (*cf. zir qagqadâni*, p. 275), the reference being to the insect which causes the secretion of the manna. The NAM has, perhaps, the value "winged" (*i.e.* NAM = "bird").

(g) ^{šam}KI-ŠIŠ-KI "Earth of the Moon-god". Comparable to this are ^{šam}KI-^aBABBAR "Earth of the Sun-god", and ^{šam}KI-^aMÉR "Earth of the Storm (Wind, Rain) -god", occurring thus (*CT.* xi, 46, i-iv, 37-8) :

ŠA-KI-RA	| ^{šam} GUR ₅	|	šam-šá-giš-gal-la-ku-ga-[i-gub]	|	[ša-ki-ru-u]
ŠA-KI-RA	| ^{šam} KI- ^a BABBAR	|	šam-ki-i-ú-[la-ku]	|	[ša-ki-ru-u]

¹ For the "scraping" of manna *cf. EB.* xith ed., xvii, 588, on Manna : "the fragments adhering to the stem, after the finest flakes have been removed, are scraped off" and *cf. ib.* on the *gaz-angabin* manna of Persia, which is obtained by scraping the stems of *Astragalus florentulus*.

restored according to *Br.* and *D.*, the former confirmed by *CT.* xii, 23, 93064, 5, and also *cf.* the following :

Mat. 88, 3, 70-1 :

$\dot{s}am_{I-NE}$	|	$\dot{s}am_{qud-ra-tum}$
$\dot{s}am_{KI-aBABBAR}$	|	$\dot{s}am_{\dot{s}a-ki-ru-u} : ta\dot{s} \dots$

CT. xi, 45, i-iv-9, a :

QU-UD-RA | $\dot{s}am_{KI-aMÉR}$ | $\dot{s}am_{-ki-i-i\dot{s}-ku-rak-ku}$ | *qu-ud-ru*

(*Cf.* additional references to $\dot{s}am_{KI-a\dot{s}i\dot{s}-KI}$ as equivalent to *ašušimtu*, p. 275.)

With $\dot{s}am_{KI-aMÉR}$ (= *qudru*) "Earth of the Storm-god", *cf.* the following (Ainsworth, in Chesney, *Narr.* 501) about Kurdish customs near Sulimaniyah: "Two kinds of manna ('*Kudrat halvassi*', divine sweetmeat) are collected—one from the dwarf oak, and another from the rocks, the latter being pure and white. When a night is unusually cool in June, the Kurds say it rains manna, as most is then found." (Note also that Mr. John Horne, p. 271, says that it is said to be found after lightning.) *Qudrat halvâ* is the name in Persian given by Steingass (*Dict.*, p. 957), for the "manna of the Israelites", and we may well follow up this clue for our word *qudru*, $\dot{s}am_{KI-aMÉR}$, paralleled by $\dot{s}am_{KI-a\dot{s}i\dot{s}-KI}$, *supalu*, manna. It is possible that the Persian *kudrat halvassi* "divine sweetmeat" has its origin in the Assyrian word *qudru*, and not in the Persian word for "divine",¹ and if so, we have every right to see "manna" in $\dot{s}am_{KI-aMÉR}$, *qudru*. Similarly, therefore, we may see in the form "Earth of the Moon-god" some form of manna which has exuded in the night, as contrasted with "Earth of the Sun-god", obtained presumably in the day-time, or at all events, at a later time in the day than the former.

With $\dot{s}am_{KI-aMÉR}$, *qudru*, as the Persian *kudrat halvassi*, the manna from the Dwarf Oak, and the other two kinds $\dot{s}am_{KI-a\dot{s}i\dot{s}-KI}$ and $\dot{s}am_{KI-aBABBAR}$, we can go on to the important word $\dot{s}akiru$, equivalent to $\dot{s}am_{GUR_5}$ and $\dot{s}am_{KI-aBABBAR}$. *Šakiru* has first its connection with the narcotic $\dot{s}am_{GUR_6}$ (p. 230): secondly, its equivalence with "manna" suggests at once its connection with the Syro-Persian *sekar*, *saccharum*, from the obvious "sweet" use of manna as given in the preceding pages, and this double use of intoxication ($\dot{s}akiru$ = "intoxicator") and sweetness indicates that there must be some reference to that fermentation which produces both sugar and an intoxicant. Which has the prior claim of meaning is not easy to say but, at all events, what does arise from this discussion is that our word "sugar" is referable to the Assyrian $\dot{s}akiru$, with its meaning both of "manna" and of a narcotic or intoxicant.

(h) $\dot{s}am_{NIGIN}$, see (e).

(i) $\dot{s}am_{Gablulu}$, strikingly like the late Heb. *gabhlûl* "dough". I doubt whether the word $\dot{s}amesû$, which seems to be "tragacanth" (p. 271) is connected with the late Heb. *'issâh* "dough", possibly from a flour-like appearance. It is worth noting, however, that a common Persian sweetmeat is wheat-flour kneaded with manna into a thick paste,

¹ Unless, of course, *qudru* represents an ancient form of the Persian.

and also that there are the round cakes made partly from manna from the *Astragalus florentulus* which are sold in the bazaars (*EB. xith ed.*, xvii, 587).

(j) *šam*^{AN-ŠIR-LU} (not KU, as Deimel and Meissner). Uncertain.

(k) *šam*^{Si-e(?)}-*du* (var. (?) *šam*^{si-}-*du* (= *šam*^{mal} (?) - . . .), with which cf. (in sound) the Syr. *šaidā* "lime". *šam*^{Sēdu}, however, is not a certain equivalent for "manna" in the vocabularies, but it is certainly curious that *šam*^{kakkušakku} (p. 269) perhaps meaning "pounded chalk" (*DACG.* 180) is in the *šam*^{šašumtu}-group.

(l) *šam*^{Šami širpi} "drug for dyeing", in connection with oak-manna, might refer to the kermes insect. *šam*^{Šilqi} is inexplicable as yet apparently.

(m) Note also the equivalence ¹³*šE-RÚ-A* = *supalu* (with other equivalences *zigpu*, *niplu*, *šiltu*, and *šūšu* (*D.* 367, 126).

Leaving *šam*^{supalu} as the natural manna directly secreted by the trees, we can examine the following lists which contain words obviously connected.

VAT. 9000 :

<i>šam</i> ^{PI} — ZIR	<i>šam</i> ^{ša-su-un-tú}
<i>šam</i> „ <i>arqu</i>	<i>šam</i> ^{šá-mi qagga} - <i>a-nu</i>
<i>šam</i> „ DU-DU	<i>šam</i> ^{PI-ZIR}
<i>šam</i> „ RI-RI	<i>šam</i> ^{da-a-a-i}

and, further on :

<i>šam</i> ^{šá-mi GIŠ-GI}	<i>šam</i> ^{bu-uk-la-nu}
<i>šam</i> ^{PI-ZIR}	<i>šam</i> ^{ša-su-un-tú}
<i>šam</i> ^{ša-su-un-tú}	<i>šam</i> ^{šá-mu bir-bir-ru}
<i>šam</i> ^{kak-ku-šak-ku}	<i>šam</i> ^{šá-mu} „

Quotation from *Mat.* 88, 4, 56, 57 :

<i>šam</i> ^{mu-ni eqli}	<i>šam</i> ^{da-a-a-e}
<i>šam</i> ^{PI-ZIR}	<i>šam</i> „

Pl. 38, S. 8, 9-11 :

<i>šam</i> ^{ZIR-ZID-LAL}	<i>šam</i> ^{zir qa-qa-da-nu}
<i>šam</i> ^{KI-ŠIŠ-KI}	<i>su-pa-lu</i>
<i>šam</i> ^{KI-ŠIŠ-KI}	<i>a-šu-ši-im-tú</i>

Pl. 28, K. 4345, *obv.* 1-6 :

.....
.....	<i>šam</i> ^{ša(?)} - <i>šu-um</i> (?) ^{-tú}
.....	<i>šam</i> ^{ša-su-um-si}
.....	<i>šam</i> ^{ša-su-} <i>tú</i>
<i>šam</i> ^{da(?)} - <i>e</i>	<i>šam</i> ^{PI-[ZIR]}
[<i>šam</i> ^K]- <i>A</i> — ŠUR ¹	<i>šam</i> ^{pi-en-[zir]}
[<i>šam</i> ^{e-zu}]- <i>zu</i>	<i>šam</i> ^{pi-en-[zir]}

¹ Restored from *Pl.* 38, K. 14087, 1-3, cf. Landsberger, *Fauna*, no. 335.

Beginning with the group on *Pl.* 38 (p. 275) which includes *šam zir qaḡadānu*, along with *šam*-KI-*a*ŠIŠ-KI "manna", we can discuss the *qaḡqadānu*, long supposed to be included among the crickets or locusts, it having been presumed that it was an insect with a large head (Landsberger, *Fauna*, 124, and following him, my *AJSL.* 1937, 228). As we saw on p. 270, one of the sources of manna is provided by the puncture of an insect on the tamarisk, the *Coccus manniparus*. We can enlarge on this by enumerating these insects:

For instance, the insects on the *gavan* which produce the *gez* manna are (a) diminutive red: (b) dark "like the common louse": (c) a very small fly (Frederick, *Trans. Lit. Soc. Bombay*, 1819, i, 254 ff.: Ainslie, *Materia Indica* i, 210, quotes Kinneir for the red kind). The ash-manna of Sicily, gathered in June and July, is supposed to drop in consequence of a puncture made by an insect resembling a locust (Smith, *DB.* ii, 230). J. G. Myers (*Insect Singers* 160) says of the cicadas¹ which cause manna to be produced by their punctures, that Donovan, who was responsible "for the charming English popular name applied to a Chinese cicada, namely 'flea-locust'" writes that cicadas "had been observed to fly among ash-trees, bore many holes in them, and when the manna had oozed out, return and carry it off". Tancred Robinson (*Philos. Trans. Roy. Soc.* xxix, 474, quoted *ib.* 160) says: "coming near Capua, I observ'd a Species of Ash or *Ornus* on the trunk whereof many Saccharin Concretions were visible. This proved the true *Manna*, that issues out thro' the incisions made in this Tree by the Inhabitants of Calabria. Swarms of Cicadas were sucking the Body and Boughs, and perhaps by wounding them made way for fresh Manna." Usually various kinds of Cicadidæ are seen to emit spray or evacuations from the anus while they are feeding (*ib.* 161). In Australia, the blacks say that the manna produced by *Eucalyptus viminalis* (*mannifera*) is the excrement of a cicada (*ib.* 164). In Sinai the manna-producing insects observed by the expedition from the Hebrew University in Jerusalem were (1) *Trabutina mannipara* Ehrenberg: (2) *Najacoccus serpentinus*, var. minor, Green: (3) *Euscalis decoratus* Haupt: and (4) *Opsius jacundus* Leth. (see Partington, *Or. and Dev. of App. Chem.*, 162-4, a reference which I owe to Colonel Hoysted. Note also the large insect of the locust kind with sword projecting from tail (Rich, *Koord.* 195).

We are therefore probably on the right track in seeing in *qaḡqadānu* one of the Cicadæ which causes the manna to exude, either by direct puncture, or through its own body, and *šam zir qaḡadānu* "drug of the seed of the *q.*" the manna itself, the Assyrians being aware of the peculiar way in which manna might be produced through the body of the insect. This will help us ultimately to an explanation of *šamašusimtu*.

Lastly, we may trace the meaning of the word *qaḡqadānu*, relinquishing the theory that it is an insect with a large head or that there is any connection other than phonetic with the word *qaḡqadu*. Professor Hale Carpenter was so good as to show me specimens of *C. Mannifera* which could certainly not be described as having a large head, and we must seek the explanation elsewhere. It would, therefore, hardly be out of place

¹ It is curious that "among English-speaking people the general term is *cicada* among the better informed, and locust with the masses" (*ib.* 33). Cf. *qaḡqadānu*.

to compare the two names *Cicada* and *qagqadānu* on onomatopoeic grounds, the Assyrians ascribing the same sounds to the manna insect as the Romans and, by a well-known process of folk-etymology, referring the sound to their word for "head" as the nearest philological connection, an exact parallel to the American "katy-did".

We can continue with the words *šamašusimtu*, *šamšašuntu*, etc., as they occur in *MT*.

(a) *šamašusimtu* : uncertain disease, †, drink, *AM*. 4, 4, 3.

(b) *šamšašuntu*, *šamšašuntu*, *šamšašutu* : ext.: Head, †, bind on, *AM*. 2, 1, 20. For NIM.NIM (flies), alone, bray, anoint in oil, *KAR*. 203, iv, 19. For *ašî* (appetizer) alone, *ib*. iv, 3. That a *am*LIL-LÁ should not approach, anoint with *mušû*, *šamšašutu*, and pig's bone in oil, *KAR*. 196, r. i (= ii), 43. Uncertain (prob. similar) anoint with *mušû* and human bone in oil, *KAR*. 205, 12. Uncertain, †, "while it is yet green," anoint in cow's fat, *AM*. 88, 2, 7.

Ext. and int.: TAB-UD-DA ("heat of the day"), alone, drink in beer and anoint in oil, *KAR*. 203, i, 49 ("a drug for TAB-UD-DA", *Pl*. 36, 79-7-8, 22, 2). Uncertain, †, bray, drink in beer, anoint, in oil, *AM*. 88, 2, r. 9.

Int.: For urinary trouble, one of 37, bray, drink in squeezed grapes, or beer and refined (*halsî*) oil, *KAR*. 193, 6. For some anus-trouble or retention, †, bray in oil . . . , and beer, and drink, *KAR*. 157, 41. Uncertain use, against ghostly seizure, *AM*. 97, 6, 12-14.

Fumigate: for Ghost, with 6 others, *AM*. 78, 10, 2, dup. 99, 3, 14.

It is mentioned in *ADD*. 1042 (re-exd.) . . . "PA of pomegranate, PA of grapes (?), PA of *šA*.AM, PA of mulberry, PA of GI.BU, PA of *šamšadanu*, *šamšašumtu*, *šamlišan kalbi*, *šamalamû*, *šam*DIL-BAT, *šam*NU-LUH-ĦA, *šam*kašî ŠAR, *šerînu*, *šSUR*-MAN, *šdaprānu*, *šGIR* (?), *qanû tâbu*, *riqmurru*, *riaburašu*. In *VAT*. 9000 [*šamša-mi*] *sa-ma-ni* = *šamša-šu-un-tu* ("[a drug] for scab").

It occurs in the *VM* :

(a) *Pl*. 42, K. 274, 17, with dup. K. 8764, unpub. : S. 1701, iii-iv, 2 (Meek, *RA*. 1920, 181) : *Mat*. 88, 2, 1 :

šamša-šu-un-tu | *ina qagqad eribi šalmi*

i.e. "on the head of a black locust". This suggests our *qagqadānu*-insect (see p. 276).

(b) *Pl*. 10, iii, 5, K. 4218, A. : K. 4140, A, ii, 3 : *Pl*. 26, K. 14060, 11. Meek, *ib*. 182, v-vi, 4 : *Mat*. 88, 2, 20 (cf. 1, 117 : . . . | [*ina šarat*] U₈NU.TIL).

*šamša-šu-[ši-im-tu]*¹ | *ina šarat* U₈NU-TIL (preceded by *šambu-uk-[la-nu]*, with which cf. the syllabary p. 275). "On the wool of a virgin ewe" suggests a similarity with the ancient labdanon, which was a gum collected from the beards and thighs of goats which browsed on the cistus in Crete, but such a process appears to have no parallel in Mesopotamia.

MT., however, shows that the *šamašusimtu*, with its curiously varied forms, is used both int. and ext., its outstanding ext. value being against insects, and to drive away supernatural beings, and its int. use (mildly)

¹ *V*. *šamša-šu-[um-tu]*.

for urinary trouble. Its presence in *ADD.* is important, as showing that it had its use in everyday life. The prescription in *MT.* "while yet green" parallels *šam*PI-ZIR *arqu* (= *šam*šami *qaqqadanu*), *p.* 275.

The first half of the word *ašu(šu)* suggests *ašû* "go forth", *i.e.* excreta (as in the instances on *p.* 276). The second half can hardly contain an original *m*, because we do not find any form such as *ašuşindu* (*i.e.* like *sāmtu*, *sāndu*): the forms have always *mt*, *nt*, or even *t*, and not *nd*. If, therefore, we accept *šašu'tu* (not forgetting the possible *ašuşitu*) as the original, the *Syr.* *šā'ê*, *inquinavit*, *šā'â*, *immundus*, will give us a useful cognate, suggesting then manna which the *Coccus* ejects through its body.

Continuing with *šam*GIŠ-GI = *šambuklanu*, equally probably a manna, we might infer from *p.* 255 (where I have suggested that *GIŠ-GI* may have the meaning of thicket) that *šambuklanu* is connected with the tamarisk. The tamarisk certainly produces manna (*FJ.*² iii, 40, 3); a cicada of unknown species was found in phenomenal swarms on the tamarisk and "jewassee" bushes of treeless country in Afghanistan (Myers, *op. cit.*, 130, 140, quoting Hay, 1840). But nothing definite can be said about this equivalence. It occurs in *MT.* as *šam*šā-mi *GIŠ-GI*, [drunk] for strangury,¹ †, *AM.* 59, 1, 56. *Cf.* also *KAR.* 185, iii, 9. *šam**Buklānu* is brayed alone and eaten without a meal for lungs (*ḤAR*ⁿ¹), *KAR.* 203, iv, 23 (dup. a new text from Nineveh).

Finally, we can compare the other insects in these sections: *VAT.* 9000 gives the curious equivalence *šam*PI.ZIR for *šam*šašuntu (*i.e.* the ejected manna, *p.* 275), the *šam*PI.ZIR being taken by Landsberger (*Fauna*, 26, 334-5) to mean "spider" (Spinner), he having the values *šam*šUR.šUR ("plant-spinner") and *KA-šUR* ("mouth-spinner"). These occur in various forms in *MT.* (see also Landsberger, *op. cit.*, 135):

*šam*PI-ZIR-DU-DU is one of 16 drugs to be dried, brayed, and mixed in vinegar (and prob. applied ext.) for some form of skin-trouble similar to herpes, *pindû*, if we may base anything on a recipe two registers lower down in the text *AM.* 84, 4, iii, 4. *šam*PI-ZIR is one of several drugs to be brayed and made into a suppository, *AM.* 53, 1, iv, 3. *šam*PI-IN-ZIR is one of several mixed in suet of the kidney of a male ox for ext. use on *lamšat hīlāti* (prob. a skin-disease, *AM.* 44, 1, ii, 15). Medicinally the *Cicadæ* are prescribed by Dioscorides (ii, 56, quoted Myers, *Insect Singers* i, 88) for pains in the bladder; Galen recommends them for colic (ix, 32). Ext. they were used with oil of scorpions for a scorpion sting (Buckton, 1890). Slight vesication appears to have been obtained by experiment (*l.c.* 190).

*šam*PI-ZIR-DU-DU must mean "crawling PI-ZIR", just as *šam*PI-ZIR-RI-RI means "flying PI-ZIR", the latter being equated with *šam*da-a-a-e, which in its turn = *šam*mu-ni (rather than *ir*) *eqli*. *šam*Daie may well, I think, be cognate to the *Syr.* *dāw'yāthā*, translated "cantharides"; it is less probably connected with *šam*û "to spin", as Landsberger suggests. *šam*Muni *eqli* = "m. of the field", *munu* being an insect (Landsberger, 128).

To sum up: *š*ZA-BA-LAM, *š*zabalum is probably the Arab. *lizzāb*, *Juniperus excelsa* M.B.: its turpentine (*š*supalu, and not improbably

¹ *šam*šami *GIŠ-GI* is [drunk], †, for urinary stoppage, *AM.* 59, 1, 36.

^{šam}*supalu*) is used ext. in *MT.*). ^{šam}*Supalu*, however, is definitely ^{šam}*rim*, the globular dropping of the tree, and ^{šam}*ki-šiš-ki* ("the Earth of the Moon God"), etc., and thus represents manna, used for the most part internally when a drug. The cicada, which causes the puncture which produces the manna, is called (among other names) *qagqadanu* (not from the size of its head, but from the cicada-like sound which it makes), and the manna exuding from its evacuations is called "drug of the seed of the q.", or ^{šam}*ašušimtu*, ^{šam}*šašuntu*.

(^{is})(^{riq})*DUP-RA-AN*, *dapránu*, *Juniperus drupacea* Labill., juniper.

4. ^{is} or ^{is} ^{riq}*DUP-RA-AN* (Meissner, *MVAG.* 1913, 2, 17, 24), ^{is} or ^{šam} or ^{riq}*dapránu*, *dupránu*, long identified with the Arab. *difrān*, *Juniperus drupacea* Labill. (*MA.* 264), in North Lebanon, Anti-Lebanon, and Mar'ash (*FJ.*² iii, 33 : *FP.*² ii, 800), the ancient habitat being Amanus (with cedar, cypress, and pine (*Anp. AKA.* 373, 89) : mentioned with ivory, ^{is}*ušú* (willow), ^{is}*urkarinnu* (box), mulberry, cedar, cypress, and ^{is}*butni*, to build Sargon's palace (Sargon, *Cyl.* 63). Common in buildings in the late Assyrian empire, but not before the first millennium B.C., which its Sumerian "equivalent", *DUP-RA-AN* (obviously as a word taken from the Assyrian) may confirm. It occurs as *dprn* in the Ras Shamra texts (Virolleaud, *Glecs.* 1, iii, 1898, 24). In Indian medicine its fruit and oil are carminative, stimulant, and diuretic (*IMP.* ii, 1227), emmenagogue, used for dropsy, and the powder rubbed on painful swellings (*BMM.* 513).

It occurs thus in *MT.* :

(1) *Simply*: ext.: Breast and loins, †, prob. poultice (^{is}*dapr[anu]*), *AM.* 51, 5, r. 8.

Enema: †, prob. *AM.* 41, 1, iv, 1; †, 1 shekel, ^{is}*dapranu*, *AM.* 41, i, iv, 12.

(2) *Seed*: *Ears*, †, fumigate (^{šam}*dapránu*), *AM.* 33, 1, 28.

(3) *Oil*: *Ears*, †, insert (^{is}*dapr[anu]*), *AM.* 35, 2, 6. *Suppository*: make a ^{is}*LAM-MAR* (suppository, p. 247), sprinkle it with oil of *dapranu*, put it into his anus, *KAR.* 203, ix-vii, 10. ^{dup. Nin}

(4) *ZID*. *ZID* (powder): †, [anoint], (^{is}*dupranu*), *KAR.* 90, r. 19.

In the mythical figure, Ebeling, *Tod.* 47, 10, ^{is}*dupranu* represents the *kisilla* (for *kisilla*, loins).

E. ^{is}*ŠINIG*, *bīnu*, *Tamarix orientalis* Forsk., tamarisk.

The characteristics of ^{is}*bīnu* coincide well with the old identification with the Syr. *bīnā* "tamarisk" (cf. 'ešel for *bīnā*, *FJ.*² iii, 402). It was used for fuel (*AM.* 37, 10, 2) as in Baghdad to-day (*FJ.*² iii, 399). The length of the poles (in the 3rd dyn. of Ur) measured 6, 5, and 3 cubits, as contrasted with the 12, 11, and 7 of the ^{is}*ū-ku* (fir) (De la Fuye, *RA.* 1919, 4, 7) : 7½ in Shulgi's time (*TUrk.* 35), 10 being worth a shekel; but 20 cubits is once cited (De Genouillac, *ITT.* v, 3). From the wood could be made dishes or forks,¹ spindle whorls, shepherds' staffs (or crooks) (respectively Ebeling, *MAOG.* ii, 3, 9, 23 : *KAR.* 223, 2 : Ebeling, *ib.* 14). It was apparently hollowed or pierced (^{is}*ŠINIG UD-DA-KUD-DA* = *bīnu*

¹ I see that Herr Ebeling adopts my view about *idgurtu* (*idguru*) as "needle" ("fork") (*DAG.* 120). But ^{is}*Liš* must also mean "dish" (cf. the forms in *D.* 377), and in *AM.* 89, 1, 10, 32, drugs are to be drunk in a ^{is}*Liš* of tamarisk.

naḥir (Meissner, *MAOG.* 1925, 2, 26, ii, 3; cf. Meissner, *Suppt.* 64). Even ceremonial daggers might be carved from it (*ina patri* ^{is}*bīni talapat(at)*, Ebeling, *Tod.* 67, 8, *KAR.* 245). Small figures are fashioned from it, or perhaps from its gum (*Maqlū* iv, 39: *KAR.* 80, 10, parallel to figures of wax and cedar: *BBR.* 148, 47) and *bašme* (serpent, *AM.* 101, 2, iii, 4) and *suḥ-ḥa* (a kind of fish, *ib.* 8). The *tertennu* was drunk in a virility charm (*Liebesz.* 52, 12, cf. 20).

In *MT.* ^{is}*bīnu* is prescribed:

(1) *Simply: ext.: Eyes*, ^{is}*šINIG* alone in strong vinegar, wash (*etc.*), *AM.* 9, 1, 32. "Poison," †, poultice, *AM.* 98, 3, 8 (^{is}*šINIG*). Dry cough, †, bind on for 15 days, *AM.* 50, 3, 2 (^{is}*bi-ni*). Bruise (*mišitti*), †, poultice, *AM.* 76, 5, 9 (^{is}*ambi-nu*); 77, 7, 10 (^{is}*šINIG*): 79, 1, 12 (^{is}*bi-nu*). Swelling, †, poultice, *AM.* 100, 3, 13 (^{is}*šINIG*). Feet, †, rub, *AM.* 69, 2, 5 (^{is}*bi-ni*), *dup.* 70, 7, 9 ff. (^{is}*bi-ni*). Some female disease (menstruation), reduce alone, bray, wrap in wool (apply to womb), *KAR.* 194, iv, 20 (^{is}*šINIG*).

Int.: Hand of Ghost, †, drink in beer, *AM.* 76, 1, 16 (^{is}*šINIG*): †, . . . in wine drink, 97, 6, 3 (^{is}*šINIG*). Sorcery, one of 32 in wine or beer drink, *AM.* 89, 1, 2 (^{is}*šINIG*).

It is constantly used in ritual washing, the ash probably being intended, *e.g.* in a virility charm, †, rub on body (*Liebesz.* 43, r. 3) (for a full discussion see ^{is}*ammaštakal*).

(2) *Seed: ext.: Temples*, †, bind, *AM.* 102, 1, 39 (^{is}*šINIG*): 104, 1, 16 (^{is}*šINIG*). *Eyes*, †, apply, *AM.* 14, 5, 7 (^{is}*bi-ni*). *Feet*, sickness coming out, apply with root of ^{is}*am*-UR-PI-PI (*AM.* 74, 1, 4 (^{is}*bi-ni*). *Ghost*, †, anoint, *AM.* 93, 1, 3 (^{is}*bi-ni*). *Hand of Ghost*, †, ointment, *AM.* 94, 2, ii, 14 (^{is}*šINIG*): †, anoint, 95, 2, ii, 10 (^{is}*šINIG*): †, anoint and wear on neck, *KAR.* 184, 21. *Bruise* (*mišitti*), †, poultice, *AM.* 79, 1, 27 (^{is}*bi-ni*). *Stomach*, alone in . . . -oil anoint, *KAR.* 203, r. iv, 29 (^{is}*šINIG*), cf. *AM.* 39, 1, 8. *Anus-trouble*, alone in fat, *KAR.* 203, r. 1, 3, *dup.* of tablet from Nineveh, and *Pl.* 30, S. 698, uncertain line (^{is}*šINIG*).

Int.: Stomach, alone in honey and *ḫimetu*-ghee, drink, *Kū.* ii, iii, 6: †, drink, *AM.* 76, 1, 16 (^{is}*šINIG*). *Sorcery*, †, drink, *AM.* 89, 1, 2 (^{is}*šINIG*). *Jaundice*, alone in beer drink, *Kū.* iii, iii, 14 (^{is}*bi-ni*). *Urinary trouble*, alone in beer drink, *AM.* 59, 1, 20 (^{is}*šINIG*). Prob. int. (?) for mouth and saliva, †, *AM.* 29, 5, 19 (^{is}*šINIG*): 31, 4, 11 (^{is}*šINIG*).

Fumigate: Eyes and temples, †, *AM.* 12, 4, 7 (^{is}*šINIG*). *Ghost*, †, *AM.* 95, 2, 1 ([^{is}]*šINIG*), *dup.* 99, 3, r. 6 (^{is}*bi-ni*): *AM.* 99, 3, r. 9 (^{is}*bi-ni*), 13 (^{is}*bi-ni*). Uncertain, †, *AM.* 94, 2, 12 (^{is}*šINIG*).

(3) *PA* (tops): *ext.: Mouth*, poultice, *AM.* 24, 5, 8 (^{is}*bi-ni*). For *bubul* on feet, alone, bray, apply in cedar-blood, *AM.* 75, 1, iii, 20 (^{is}*bi-nu*). Head, †, *AM.* 1, 2, 19 (^{is}*bi-ni*). *Swelling*, †, *AM.* 73, 1, 12, 23 (^{is}*šINIG*), bind on, *ib.* 33 (^{is}*bi-ni*). *Veneral*, introduced by tube in penis, †, *AM.* 58, 6, 7 (^{is}*bi-ni*). (Cf. *AM.* 32, 1, 12 (*PA* (?) ^{is}*šINIG*)).

Int.: Uncertain, with *Solanum*, drink in beer, *AM.* 91, 5, 5 (^{is}*bi-ni*). *Jaundice*, †, drink in beer, Scheil, *RA.* 1916, 38 (^{is}*šINIG*): *šr* (liver), drink with ^{is}*am*-TU (v. TUL ?)-LAL in *kurunnu*-beer or wine, *KAR.* 203, i, 34 ([^{is}]*šINIG*), *dup.* Scheil, *RA.* 1916, 38, 22 (^{is}*šINIG*).

Quantity: ½ qa, *AM.* 53, 4, 4 (^{is}*bi-ni*).

(4) *šE.RÙ* (shoots): *Int.: "Drug for the Hand of God: to free a tabu on the ḫm bubbuli,"* drink alone, *KAR.* 203, i, 17 (^{is}*šINIG*).

Fumigate: "Poison," † (including "seed of ^{is}bi-nu"), *AM.* 91, 1, 7 (^{is}bi-nu).

(5) *Water*: as medium for other drugs, for *temples*, drink, *AM.* 14, 5, 4 (^{is}bi-ni). *Eyes*, with *abanmusî*, *AM.* 14, 3, 8 (^{is}ŠINIG). According to a line quoted in the colophon of the series URU-AN-NA: *mal-ta-kal*, the "water" of the *bînu* was called "lion's blood" (see *Introd. Note* to this book).

(6) *Hîlu* (gum): A-DAN ^{is}ŠINIG, wrap in goat-hair, put on neck, *KAR.* 203, i, 29.

(7) *Išdu* (root): *Guraštu* (itch, scab, or similar), with root of *šamBAR.HUŠ*, etc., *AM.* 17, 1, ii, 6.

(8) *Kamunu* (lichen) in *VM.* (*JRAS.* 1934, 776): *šamkamun* (^{is}bini | *ina* *abangabî* (the var. for *šamkamun* ^{is}bini being [TIN]-TIR-ŠAR bi (!)-ni in *Mat.* 88, 1, 40. Here, the well-known meaning for *kamunu* "lichen", and its association with alum, suggests its use as a mordanted dye. The lichens in use in dyes grow on various trees, but I have as yet found no mention of one of tamarisk (see *JRAS.* 1934, 773). On the other hand *BRP.* iv, 37, 22 (*JRAS.* 1924, 456) [*kamun* ^{is}bini ša *ina* (?)] *išid* ^{is}bini *uššû šaniš kamun* ^{is}bini: *abangabû* (u): "[Lichen of tamarisk which on (?)] the root of tamarisk springs forth, or alternatively, *kamun bîni* is alum." This bears curiously on one of the problems of the *Vade Mecum* which not infrequently (but by no means always) contains in its right-hand column one of the well-known equivalents for the drug in the left-hand column.

Other mentions of the tamarisk occur in the well-known dialogue between the tamarisk and palm, in which each vaunts its own superiority (Ebeling, *MAOG.* ii, 3), and there is also the poetical couplet, *CT.* xv, 27, 42 (Zimmern, *Sum.-Bab. Tammuz-Lieder*, 235). "In a *šarbatu* (willow)-tree he lies, sated with woe, in a ŠINIG.A (tamarisk of the water?) he lies, sated with mourning." The tree is also given as a simile for the hair of the mythological being in Ebeling, *Tod.* 47, 9, and there is a ritual in which a virgin kid is given it to eat, Ebeling, *MVAG.* 1918, 27, *KAR.* 42, 21.

For the problem of *hašhûri âbi* "apple of the grove", as probably (tamarisk galls), see p. 255.

In medicine, Pomet (*HD.* 64) says that the bark, root, leaves, and flowers are all used in physic for obstructions of the spleen, mesentery, dysmenorrhœa, and melancholy humour. The manna¹ is used in India as a mild aperient, expectorant, and detergent (*BMM.* 168): *Diosc.* i, cxvi, says that the root is used for teeth (and incidentally that cups are made from the trunk).² *LPG.* 441 says that a decoction of the bark of tamarisk is prescribed for catarrhal affections, gout, and dropsy. In Syriac medicine (*SM. vide Index*) tamarisk is used under the name *môrîqâ*, †, for eyes (*SM.* ii, 90, 103), the leaves for mouth and teeth (*ib.* 184), the seed for spleen and liver (*ib.* 465), fruit for looseness of the bowels (*ib.* 487).

The galls of *T. gallica* L. (Arab. *tarfā*) are used int. for diarrhœa and dysentery, and locally to ulcers (*WPI.* 29). In India, the galls of *T. orientalis* are regarded as highly astringent, and as a tonic, in chronic

¹ A good description of the tamarisk manna is given by Piliter, *PSBA.* 1917, 156.

² I.e. the same as GRŠ-LIŠ, p. 279 n. 1.

discharges, watery fluxes, and leucorrhœa, and as pessaries (*BMM.* 168).

The tamarisks which are found in Syria-Palestine are *T. pentandra* Pall. (Heb. 'ešel), *T. mannifera* (Ehrenb.) Bunge (*T. gall.* var. *mann.* Ehrenb.) (Arab. *hatab aḥmar*), and *T. orientalis* Forsk. (= *T. articulata* Vahl., Arab. *athl*) (the tamarisk of Babylon (*FP.*² i, 223 ff.). Ainsworth (*Res. in Assyria* 124 ff.) remarks that "the common tamarisk [of Mesopotamia], the *Athleh* or *Atle* of Sonnini, is the *Tamarix Orientalis* of Forskål (*Flora Aegyptiaca-Arabica* p. 206). The solitary tree of a species altogether strange to this country (Heeren, *Asiatic Nations* vol. ii, p. 158) and which Rich calls *Lignum Vitæ*, found growing upon the ruins of the Kašr at Babylon, and which has been supposed to be a last remnant or offspring of the sloping or hanging gardens, that appeared to Quintus Curtius like a forest, is also a tamarisk, but it differs from the *athleh* in its size, being a tree, in having scaly branches and long, slender petioles, which are burdened with leaves, both of which may have been produced by a scanty supply of water and great age". He mentions that tamarisks began at Balis, coming down the Euphrates (*ib.* 48), and below Rakkah (*ib.* 69) he speaks of the "eternal jungle of tamarisk". The tamarisk grows to 20 feet high in Persia and Arabia (*PC.* xxiv, 1842, 24), to 25 feet in Mesopotamia (Ainsworth, quoted *FJ.*² iii, 399 : *PC.* iii, 1835, 268).

Finally, I may add the other values for ¹³ŠINIG : *gumalu* and *kipualu* (v. *kupualu*) (*CT.* xviii, 3, vii, 17, 18 : Von Soden, *ZA.* 1936, 239, 134). Of other words, ¹³GIR.SIG₇.SIG₇ = *tarpa* (*Mat.* 3, 6), i.e. the Arab. *ṭarfā* (Peiser, *KB.* i, 127 : Streck, *OLZ.* 1905, 492) ; the Assyrian word (¹³*tarpi*) is mentioned by Adad-nirari I (for building, Delitzsch, *Mitt. d. Deutsch. Orientg.* no. 21, 17), and by Anp. at Calah (*AKA.* 220, 18).

F. 1. (¹³)(¹³)ERIN, *erinu*, *Cedrus Libani* Barr, Cedar.

2. ¹³ERIN-BAD, ¹³šupuhru, an uncertain form of the above.

3. ¹³ERIN-PAR(-RA), *liāru*, *Juniperus oxycedrus* L.

4. ¹³ERIN-SUD, *šihu* (v. p. 262), prob. *Pinus Halepensis* Mill.

¹³*Erinu* has long been equated with the Heb. 'ôrēn, usually accepted as cedar (but *FP.*² ii, 797, *Pinus pinea* L., and *FJ.*² ii, 121, Lorbeerbaum).

As far back as Naram-Sin : "As far as *Baraḥše* and *Subartu*, as far as the forest of ¹³ERIN" (Gadd-Legrain, *Ur Excav.*, Texts i, 72 = Amanus, cf. 75). It is to the ¹³gišti ša ¹³erini that Gilgamesh and Engidu go (*GE.* v, 1). Gudea speaks of the "Mountain of ERIN-NA" (*ISA.* 154, 19 : cf. *ib.* 200, G, 10). The wood was used for building in the Agade-period ("a house of cedar", De Genouillac, *ITT.* ii, no. 4, 4582) : in late Assyrian times a letter (*ABL.* 464, 3) mentions "beams of ¹³erinu for Babylon, Sippar, and Kutha for the roofing (*salluki*) of the temples". Nebuchadnezzar boasts of cutting one down in the Lebanon with his own hands (Pognon, *Wadi Brissa* iv, 4), and speaks of bringing *erinin dannūtīm* from the same district (1 *R.* 66, iii, 36). Nabonidus brought beam(s) ("the product of Amanus") to Harran (V *R.* 64, ii, 10), and Darius brought the wood from Lebanon (Herzfeld, *Arch. Mit. aus Iran* iii, ii, 39). The height of this tree is no little evidence for the equivalence "cedar", as mentioned by Gudea "sixty cubits" ("sixty cubits" from the Amanus, *ISA.* 109, 28) : "its height [that of the cedar] in this country [England] has seldom equalled the taller of the larches, though it has nearly approached to it"

(VK. 472). ⁴dippi (planks or tablets) ša ⁴erinim are mentioned on an OB. letter (Kraus, *MVAG.* 1931, *Altbab. Briefe* 4, no. 3). ⁴ERIN-NA is on the Ras Shamra tablets (Thureau-Dangin, *Syria*, 1931, *pl.* xlv).

The gum (less probably the wood) of ⁴erinu was also used as a material for small figures in magic (along with others of clay, dough, fat, bitumen, and what must be ⁴bīnu, tamarisk, *KAR.* 80, 10). The *barû*-seer bears a branch of it (rather than a wand, *BBR.* no. 1-20, 70, 119: no. 11, 4: the crude little picture of a man on the bowl from Nippur with the Hebrew incantation holds an obvious tree-branch in his hand, Hilprecht, *Expl. in Bible Lands*, 447). ⁴Erinu was also used for making the pegs of a drum (Thureau-Dangin, *RA.* 1920, 66, 27): a *pisannu* of erinu-wood was sent by Amenophis IV to Burnaburiash (*TA.* i, 111, 17).

Its fragrance was famous, e.g. in *V R.* 51, b, 15, iā ⁴ERIN-NA = *i-ri-iš e-ri-ni*¹ (cf. also the *liāru*, p. 285, and *šurmēnu*, p. 286). Like mastic, ⁴erinu was chewed (*una'aš*) by priests to make their breath sweet (*BBR.* 112, 6, 17), which confirms that the ⁴erinu used in making figures for magic, quoted above, must be the gum, not the wood. An omen is drawn from ⁴erinu being given as a gift apparently in a dream (*TR.* ii, 23, 2).

Its value in incense is equally well known. Amounts of cedar-“blood” (Shalmaneser iii, *KAV.* i, 78, 1) are quoted for the Temple of Ashur, and various other gods, and the same king records tribute of logs and “blood” of cedars from *Haianu* “at the foot of the Amanus Mountains” (*Mon.* ii, 24). 15 *mana* of erinu was worth $\frac{1}{4}$ shekel of silver, approximately, in the period of Sargon I, but not later than 1950 B.C. (Gelb, *Inscr. from Alishar*, 55). Gudea speaks of “oil of ⁴ERIN.NA” (*ISA.* 163, xx, 20). In the *VM.* it is possible that there is an instance of the tree or drug (*Pl.* 42, K. 4163, 1 and [K. 8807, 1]: *Pl.* 27, K. 4431, 1: and an unpublished text):

⁴ amerinu (?)	|	ina zibbat šikkî
“Cedar (?)	|	in the tail of a cat”

Presuming ⁴amerinu to be correct, it is difficult to suggest any meaning for this: “tail of a cat” may be an alchemists’ synonym.

To-day, the cedar of Lebanon (*C. Libani* Barr., *Pinus Cedrus* L., *Abies Cedrus* Poir.) is found in Libanus, the Cilician Taurus, 1,300–1,828 metres above sea-level, Amanus, and in the Anti-Taurus, up to c. 1,300 metres (*MPB.* ii, 111: *VK.* 471: *EB.* xith ed., v, 595: *FJ.* iii, 17), so that the modern habitat coincides well with that of the ⁴erinu. In addition to our references above, ii *R.* 51, a-b, 3-4, gives the habitat as Amanus and *Hašur*; *Šurpu* ix, 42 ff., also gives its provenance as the Mountain of *Hašur*, and says that its fragrance “fills the land”. “The wood, bark, cones, and even leaves of the cedar are saturated, so to speak, with resin. The heart has the red cedar colour, but the exterior is whitish . . . for ordinary architectural purposes [the wood] . . . is perhaps the best there is in the country” (*LB.* 199). The resin is said to be similar to mastic, and the manna is a sweet exudation of the branches (*EB.* ib).

¹ Cf. ⁴ERIN.NA, which appears to vary with *lukuš* as a sacrificial fragrance in incense, Thureau-Dangin, *Rit. Acc.* 119, 21, 27. The fragrance of ⁴erinu is compared to that of ⁴hašurri by Tiglath-pileser iii, II *R.* 67, 76.

The following are the uses of *iserinu* in *MT.* :

(1) *Simply*: *ext.* *Temples*, †, *CT.* xxiii, 44, 2. *Ears*, †, insert, *AM.* 34, 1, 13. *Lungs*, †, poultice, *AM.* 55, 1, 8. *Chilblains*, †, bind on, *AM.* 32, 5, 13. *Kurara (itch)* in head, †, *AM.* 5, 5, 8. Some disease needing rubbing, with 20 others, *AM.* 98, 3, 3. *Hand of Ghost*, †, ointment, *AM.* 94, 2, ii, 18: probably *AM.* 33, 1, 7.

Int.: *Stone in kidney*, †, drink, Lutz, *AJSL.* 1919, 81, 56 ff.

Quantities: *Stomachic* (constipation?), $\frac{1}{3}$ *mana*, †, *AM.* 43, 5, 9 (*dup.* *AM.* 7, 7, 11 ff., and 56, 1, 12, *RA.* 1929, 73). Uncertain purpose, 4 shekels with small quantities in carats of others, *AM.* 10, 2, 2. *Stomachic*, 10 shekels, †, *AM.* 57, 3, 11: 79, 5, 5.

Enema: 1 shekel with 23 others, *AM.* 41, 1, iv, 12.

Fumigate: *Ears*, †, *AM.* 33, 1, 31 (*dup.* *AM.* 35, 1, 7, and 38, 2, r. 9).

Use uncertain (*ext.* ?): *Cough*, with mercury (*IM-KAL-GUG*), †, including kidney-fat of a sheep, *AM.* 80, 1, 19.

(2) *Cedar—"blood"*: *ext.*: *Ears*, mixed with pomegranate-water, inserted, *AM.* 33, 1, 40: †, inserted, *AM.* 35, 3, 4: 37, 2, 4. *Itch or scabies* in head, anoint, and then apply 29 drugs, *AM.* 1, 2, 16. *Temples*, *AM.* 103, 1, 17: *Weak hair*, reduced in fire with "carobs of the north", anointed in cypress-oil and cedar-blood, *CT.* xxiii, 35, 41.

Fumigate: for "poison" alone, after employing 7 drugs, *AM.* 91, 1, 16. *Hand of Ghost*, mix with 14 drugs, *AM.* 99, 3, 13 (*dup.* *AM.* 33, 3, 13 ff., *JRAS.* 1929, 8, 17).

(3) *Oil*: *Itch* in head, mix with sulphur and apply, *AM.* 1, 2, 8. *Head*, †, *AM.* 4, 2, 5 (*cf.* 7, v. *himetu-ghee*): †, anoint, *KAR.* 202, ii, 34. To dye hair, mixed with alum and *Anthemis*,¹ *AM.* 5, 1, 4. *Ears*, † (probably), *AM.* 36, 113: 37, 2, 6, 9: 105, 1, 13 (*dup.* 35, 5, 5). *Eyes*, †, *AM.* 10, 3, 30: †, 14, 1, 2: 16, 1, 24. (Probably) *temples*, on wool, †, *AM.* 4, 6, 5. *Nostrils*, †, *AM.* 26, 1, 4. *Nose*, †, *AM.* 26, 2, 5. *Feet*, †, *AM.* 69, 2, 5. *Urinary trouble*, alone, mixed with vinegar, introduced by bronze tube through urinary passage, Lutz, *AJSL.* 1919, 81, 48.

Fumigate: *Nostrils*, after cleansing mouth, alone, *AM.* 54, 1, r. 9.

(4) *zid (powder)*: *Ears*, steeped in beer, *AM.* 34, 5, 4.

(5) *Ash*: with "run" honey (*dišpu šešlam*, i.e. *bakā*, *D.* 544, 2) to apply to feet, *AM.* 75, 1, 22. For some female disease, bray alone (and put in uterus, l. 28), *KAR.* 194, iv, 22.

(6) *Manna*: The manna exuding from the branches is indicated by the value of *supalum* for *iserin* (*CT.* xviii, 3, 22).

(7) *šamHil iserini* = *šamqatranu*, *VAT.* 9000 (p. 247).

It would be unnecessary to repeat the uses of turpentine and resin in medicine (see p. 259), but in addition to this we can add that *IMP.* ii, 1237, says that *C. Libani* Loud is closely allied to *C. Deodara* Hook, which yields a coarse, very fluid turpentine, prescribed in India for ulcers and skin diseases, and Pliny (*NH.* xxiv, 11) speaks of an oil extracted from the cedar.

Two words representing parts of the cedar can be discussed here:

(1) *UKUŠ iserini* "capsule of the cedar", in an amulet for securing

¹ As the Assyrian would be likely to choose black as the colour to dye his hair, the *A. tinctoria* L., which dyes yellow, would be out of place (*PC.* s.v. *Anthemis*); unless, of course, he followed the modern Moslem practice of dyeing reddish-yellow.

the favour of god or goddess, consisting of *sāndu*-stone, lapis, *mušū* (copper or iron sulphate), lime, iron, male copper, hæmatite, and *ukuš¹erini* (KAR. 213, iv, 28-9). *ukuš* is the capsule of the poppy or the squirting cucumber (p. 81), and a picture of the cedar-cone, short and squat, and not the elongated cone of the pine, suggests that this may be the meaning of *ukuš* here.

(2) *Kakkultum* = *¹⁸erinu dilutum* (Von Soden, ZA. 1936, 239). In its relation to cedar this word *dilutum* might be connected with the Heb. *dāliyyōth* "branches", used in relation to vines or cedars. *Erinu dilutum*, CT. xviii, 16, Rm. 348, r. 10, is followed by [*d*]a-al-tum "a door". *Kakkultum* is curiously similar in sound to the Greek κόκκαλος, the kernel of the στροβίλος (the pine-cone). On the other hand, the Arab. *koklan* means juniper-berries in Kurdistan (FJ. iii, 36, quoting Seetzem), or *Juniperus oxycedrus* (ib. 801), so that we may have to include this under *¹⁸ERIN-PAR-RA*, which is probably the latter (see below).

2. *¹⁸ERIN-BAD*, *šupuh²ru*, an uncertain form. In Meissner, MVAG. 1913, 2, 21, 44, it occurs as (44) [*¹⁸ER*]IN-BAD = zu(?)*-pu-uh²-ru*, followed by (45) . . . = ditto (46) . . . = zu(?)*-mur erini* (47) . . . = [*šur* (?)]-mi-nu (48) . . . = . . . ia. JRAS. 1924, 455 (= BRP. iv, 37), 15, gives *¹⁸ERIN-BAD* : šu-pu-uh²-ri : *¹⁸ERIN-BAD* ša-niš bal-ti-it-tum ša lib *¹⁸erini* "*¹⁸ERIN-BAD* = šupuh²ri : *¹⁸ERIN-BAD* = otherwise a wood-worm of cedar". In KAR. 188, 4, *¹⁸ERIN-BAD* *šū-pu-uh²-[r]* varies with the dup. CT. xxiii, 39, 7, *¹⁸(?)ERIN-BAD* (RA. 1930, 127). See Meissner, Ass. Stud. vi, 68, 44 : in MDAOG. 1937, 63, he quotes Clay (UP. ii, (2), no. 107, 7) $\frac{5}{8}$ mana, 7 shekels of *¹⁸ERIN-BAD* *šū-pu-uh²-[r]*.

It occurs in MT. thus :

Simply: ext.: Temples, †, poultice, CT. xxiii, 39, 7, dup. KAR. 188, 4. Muscles of hands and feet, †, in lotion, AM. 98, 3, 13. Blains (*šiggāti*), †, bind on, AM. 32, 5, 14. In lotion, †, AM. 94, 2, ii, 10.

Fumigate: "Poison," †, AM. 91, 1, 14.

Enema: †, AM. 56, 1, 5 : cf., †, Kū. ii, iii, 8.

To identify it is difficult, as the Sumerian *¹⁸ERIN-BAD* suggests little : *BAD* might mean *labiru* "old", *adaru* "be dark", or *imdu* "erect" (D. no. 69).

3. *¹⁸ERIN-PAR(-RA)*, *liāru*, *Juniperus oxycedrus* L.

¹⁸ERIN-PAR = *ti-ia-lu* (Meissner, MVAG. 1913, 2, 21, 42) : *¹⁸ERIN-PAR-RA* = *li-ia-ru* (CT. xvii, 38, 39) and *¹⁸ERIN-PAR-ú* (doubtless the same) = *ti-ia-ar* (CT. xviii, 3, 24) (*¹⁸ERIN* itself = *ti-ia-rum* in l. 23).¹ The form *ERIN-PAR-PAR*² occurs on a brick of Enannatum I, and on Gudea's Cylinder A, xxii, 4 (ISA. 52 and 164) which Thureau-Dangin considers to be an equivalent of *liāru*. As was pointed out on p. 283, *liāru* is a fragrant wood from which doors could be made : it does not, so far as I know, occur in MT. (although in incantations, CT. xvii). *Liāru*, as the "white cedar" must surely be the Arab. 'ar'ar, *Juniperus oxycedrus* L., which grows in the Lebanon and Palestine (FP.² ii, 801) and produces "cedar oil", official in most European pharmacopœias (EB. xith ed., xv, 557). It occurs in Sennacherib, Luck. 129, 60 ; 132, 71 : Esarh., PE. pl. 16, iii, 27 ; Ashurb., Streck 503.

¹ With variants *ti-ia-a-lu* : *ru* (Von Soden, ZA. 1936, 165).

² Cf. *ERIN-PAR-PAR-RA*, Langdon, Bab. 1911 (iv), 42.

4. ¹⁸ERIN-SUD, *šihu* (Meissner, *MVAG.* 1913, 2, 21, 43). Probably the same as the ¹⁸*šihu*, *Pinus Halepensis* Mill., p. 261.

(Note a tree ¹⁸*e-ra-lum*, quoted near ¹⁸ERIN-NA, *ISA.* 155 (Gudea, *Cyl. A.* xv, 33).

G. 1. ¹⁸ŠUR-MAN, *šurmēnu*, *Cupressus sempervirens* L., Cypress generally, and thus doubtless *C. horizontalis* (Mill.) Gord.

2. (¹⁸)(^{18a})*Imdu (endu)*, *Cupressus sempervirens* L. (the Cypress of the cemeteries).

1. ¹⁸ŠUR-MAN, *šurmēnu*, has long been recognized as the Arab. *šarbīn*, *C. sempervirens* L., and *C. horizontalis* (Mill.) Gord. (the latter more particularly *šarbīn ez-zrek*, *FJ.*² iii, 13 : cf. *FP.*² ii, 800). The Syr. *šarwainā* is given the equivalents *ἐλάτη* and *Juniperus oxycedrus*. *C. sempervirens* grows in the (Syrian) "mountains", *FP.*² ii, 800 : *C. horizontalis* above Beilan (*ib.*). The former grows to a height of 20-25 metres (*MPB.* ii, 101). II *R.* 51, a-b, 5-6, gives the ancient habitat as Lebanon and *māt Ašiandu*. ¹⁸Šu-[u]r (or [ú]r)-man occurs as early as the Dyn. of Ur, Scheil, *RA.* 1921, 54, 25) : ¹⁸šū-úr-me in Gudea (*Cyl. A.* xii, 5); and the "Mountains of ¹⁸Šu-úr-me" (*ib.* xv, 19) : "10 mana of ¹⁸šū-úr-man," period of Rim-Sin (C.-F. Jean, *RA.* 1927, 66) : "10 mana of ¹⁸šū-úr-me" (De Genouillac, *ITT.* v, no. 6956, p. 4) : ¹⁸ŠUR-MAN in Sennacherib's palace (Luck. 119, 21) : Esarh. mentions "doors of ¹⁸ŠUR-MAN, of which the scent is pleasant" (*PE.* vi, 13) : Nebuchadnezzar speaks of ¹⁸šurmini nisqi (*NBK.* 138, 6). The form ¹⁸ŠUR-MAN is apparently correct Sumerian (*V R.* 26, 17, and *CR.* xix, 39, K. 9888).

The tree produces a resin but no turpentine (*EB.* xith ed., vii, 693),¹ and its leaves an essential oil and tannin (Fée, quoted Bostock, *Pliny*, *NH.* xxiv, 10) : the nuces, cortex, and lignum Cupressi "waren früher bei Brustleiden und Diarrhœ officinell und sollen noch jetzt in Oriente angewendet werden" (*MPB.* *ib.*). Pliny's prescriptions (*l.c.*) agree with *MT.* : the leaves are drunk in infusion, they stain hair black with vinegar, and are used in poultices for pains in the feet, etc. ; the "excrecences" are applied to gatherings, and are drunk for hernia ; the root and leaves are drunk in infusion for strangury. The oil was also used (*NH.* xxiii, 45).

Note the mythical text, Ebeling, *Tod* 47, 9, ¹⁸šurmēnu lān-[šu] "the cypress is [his] stature" (*i.e.* erect).

It occurs in *MT.* thus :

(1) *Simply* : *ext.* : Lungs, †, poultice, *AM.* 55, 1, 8 : prob. *ext.*, †, boil $\frac{1}{2}$ qa in a *mušahīnu* (saucepan) and add various powders, *ib.* 11. *Breast and loins*, †, almost certainly poultice, *AM.* 51, 5, r. 8.

Enema : †, $1\frac{1}{2}$ shekels, *AM.* 41, 1, iv, 12 : †, $\frac{1}{3}$ ma(na), *AM.* 56, 5, r. 3 : †, *KAR.* 157, r. 13.

Incense : ¹⁸ŠUR-MAN alone and distinct from ^{18a}burašu in a different censer at the same time, *KAR.* 184, 41.

Int. : Lungs, drink and the patient *iparris*, *AM.* 83, 1, 16.

(2) *Oil* : Hair, †, anoint, *CT.* xxiii, 35, 41. *Ears*, sprinkle on brayed salt on wool, and insert, *AM.* 34, 1, 3 : †, insert, *AM.* 37, 2, 6, 9. *Stomachic*,

¹ Does this account for the persistent use of ¹⁸ as determinative with ŠUR-MAN, and not ^{18a}, in contrast to ^{18a}burašu? Note, however, that *imdu* may have the determinative ^{18a}.

with blood coming into the mouth, †, anoint, *AM.* 42, 5, 10. *Limbs* (*flesh*), †, anoint, *AM.* 92, 1, 5. Against *enmity* in charm, anoint with other (pleasant) perfumes, *AM.* 87, 1, 7. As medium, *AM.* 90, 1, iii, 6. In *suppository*, made of various drugs and fat, sprinkled with oil of ^{is}šUR-MAN, *KAR.* 157, r. 34.

(3) PA (tops): *ext.*: Feet, †, apply, *AM.* 68, 1, 7, 20.

(4) ZID (powder): *ext.*: Head, for weak hair, †, bind on (10 shekels), *CT.* xxiii, 33, 10. Blains (^{is}gâtî) with 45 others, bind on, *KAR.* 192, r. 2, 54.

This species of Cypress must be distinguished from the next (*b*), ^{is}imdu, which is specially the cypress of the cemeteries, a form of *C. sempervirens*.

2. (^{is})(^{ria})Imdu, endu, a Semitic word, as the forms *im-du*, *im-di*, and *en-di* show, apparently without Sum. equivalent. Imdu suggests the Heb. 'ammûdh "pillar" i.e. with reference to the erect nature of the tree: the identification as "cypress of the cemeteries" is completed by the Assyrian definition "*imdu* of the grave": "In Turkish cemeteries the cypress is the most striking feature, the rule being to plant one for each interment": "a tapering flame-shaped tree resembling a Lombardy poplar" (*EB.* xith ed., vii, 693). It has always been associated with cemeteries (Chesney, *Exp.* i, 379): cf. *PC.* viii, 1837, 233: "*C. sempervirens*, the common upright cypress . . . the gloomy air it imparts to the situations which it occupies . . . *C. horizontalis*, the spreading cypress, is a far handsomer species." Pliny (*NH.* xvi, 60) says that the cypress is sacred to Pluto, and hence used as a sign of mourning.

(^{is})(^{ria})Imdu is used in *MT.* thus:

(1) *Simply*: *ext.* Temples, †, bind on ([10 shekels]), *CT.* xxiii, 45, 7, *dup.* *KAR.* 190. Blow (^{is}šittî), †, poultice, *AM.* 79, 1, 24. Swelling †, apply, *AM.* 73, 1, 4. Opening of sore, †, anoint, *AM.* 40, 5, 7.

Int.: Urinary trouble, †, drink, Lutz, *AJSL.* 1919, 80, 1, 20. (Uncertain part), *AM.* 75, 1, iv, 15.

Quantities (see above): 1 šú ^{is}en-di, *AM.* 41, 1, 25, as distinct from 1 shekel of ^{ria}en-di, *ib.* 14: 2 šú ^{is}en-di, Ebeling, *Tod* 89, 3.

(2) Oil: IÀ ^{is}endi, *AM.* 41, 1, 30, as distinct from IÀ ^{ria}endi in *l.* 7. IÀ ^{ria}endi gabrim ("of the grave"), for grey hair, †, anoint, *AM.* 4, 1, 5 (cf. IÀ ^{is}endi gabri, *ib.* 9).

Note the ritual *KAR.* 146, i, 18: 3 LIŠ ^{ria}en-di id-dan (and ii, 8, and r. iv, 10).

For cypress in medicine see p. 286.

H. ^{is}HAR, kiškanû, Acacia (?).

There are several species of this: ^{is}HAR, the simple kiškanû, ^{is}HAR-PAR, pašû "white", ^{is}HAR-GIG, šalmu "black", ^{is}HAR-DIR, sâmu "red", ^{is}HAR-DAR, barrumu "two-coloured", ^{is}SIG₇-SIG₇, ar(v. ir)-qu "yellow (or green)", ^{is}MAŠ-HAR, siḫ (v. si-iḫ)-pu, and finally (the same section) GIŠ-GIG, iššu šalmu "black wood" (tree). (Meissner, *MVAG.* 1913, 2, 14, 7-13: *Mat.* 1, i, 3-10: *ib.* 3, 7-13. Cf. the group, *Mat.* 89, 6-9:

.....	<i>kiš-ka-nu-u</i>
.....	<i>e — ri — nu</i>
.....	<i>lam-mu: si-iq-du</i>
.....	<i>si-qit-tú: lu-pa-nu</i>

I was certainly wrong (*Devils* i, 201) in suggesting "astragalus", and Albright was right to challenge this (*AJSL*. 1919, 194) on the grounds that the astragalus would not grow in the "swamps near Eridu". Langdon (*JRAS*. 1928, 843) recapitulated the text of *CT*. xvi, 46, 183-204, on which I had based my identification, adding a Sumerian text from Susa. He attributed a Sumerian origin to the word (GIŠ-KIN), and finally disposed of its identification with astragalus by showing that a chair was made from the wood (from an unpublished tablet). Meissner (*Or. Inst. Univ. Chic.* i, iv, 41) tentatively suggested a comparison with the Armenian *kask*, *kaskeni*, chestnut, but chestnuts at Eridu are impossible.

The incantation-text quoted above which describes the *kiškanû* *šalmu* "black k." says that it springs up in Eridu, with a blue appearance, stretching forth to the sea "its chamber is the bed of ^aIR (the River)," it casts a shadow like a forest, and none enter. That is to say, it is a tree growing by the waterside in the tidal districts of S. Babylonia at Eridu. Nowadays nothing in the nature of a tree grows at Eridu, since the canals have long since ceased to exist, but it is not unreasonable to say that Basrah admirably represents Eridu topically to-day, and that the tidal canals there are thickly fringed with palms, with *Ceratonia* (ⁱšharubu), and acacias (cf. Ainsworth,¹ *Res.* 124). The question is whether the *kiškanû* can represent the Acacia.

The Syr. *gammûz ukkâmâ* "black gum" is supposed to mean that of the acacia, and Bar Bahlul (see *FJ.* ii, 390) thinks that this is so, because the ripe fruit and the gum are black.

Pliny (*NH.* xiii, 19) describes the *A. Nilotica* L.: "No less esteemed, too, in the same country [Egypt], is a kind of thorn, though only the black variety, its wood being imperishable in water even, . . . on the other hand the white kinds will rot very rapidly." Several species besides this grow in the Near East: e.g. *A. tortilis* (Nubia, Kordofan, and Arabia, and esp. Mt. Sinai): *A. Seyal* (Upper Egypt, Nubia, W. Arabia): *A. Senegal* (Arabia and the interior of Africa): *A. Julibrissin* (a native of Persia and the Levant, with clusters of lilac flowers) (*PC.* i, 60). The white might be *A. albida* Del. (Arab. *sunt*, *FJ.*² ii, 387): there is a variety with yellow flowers, *A. Farnesiana* (L.) Willd. An acacia with yellow blossoms is very common in Basrah.

The passages hitherto quoted for the use of ⁱšⁱkiškanû in *MT.* are of little value: *Kû.* iii, i, 40 (GIŠ-KIN(HAR) . . .) which is thus quite uncertain: and *CT.* xl, 13, 40, prescribes "snake-skin, bark of ⁱšⁱHAR-gig (black *kiškanû*), bark of ⁱšⁱHA-LU-ÚB (willow) . . ." to be fried together. The third passage is the incantation text cited above, with very doubtful usage.

¹ He speaks of acacias occurring as far north as Hawisah and the Karun, and of *A. spinosa* in the valley of Gok Irmak (*ib.* 132, and *Roy. Geog. Journal* ix, 1839, 258).

1 PISAN + GI ŠE ¹³ĤAR "a basket of ŠE (grains) of *kiškanû*" (Pinches, *Amh. Tab.* 7, r. 1) may be the gum arabic (dry) in pieces, or perhaps the seeds from the pods.

The great objection to identifying ¹³*kiškanû* with Acacia is that one of the common products of this latter is gum arabic, and we have no suggestion that any *ḫil* ¹³*kiškanû* exists. Yet it is difficult to find a more suitable equivalence, for, having regard to the locality, the colours of the tree, and the profusion of the Acacia in S. Babylonia, the number of possibilities is very limited. Moreover, *ḫil* ¹³Ú-GIR "gum of thorn", p. 180, is obviously a proper word for it. *IB.* 1407 gives many remedies from gum arabic.

I. ¹³*Tulubu*, ¹³*dulbu*, *Platanus orientalis* L., plane-tree.

¹³*Tu-lu-bu-um*, Gudea, *Cyl. A.* xv, 32, *ISA.* 155; from the mountain of Ibla, *ib.* v, 57, *ISA.* 109. Sargon mentions ¹³*dul-bu* growing with ¹³*šurathu* near the city Ulḫu (in Urartu, *HC.* 35, 206). Rare in *MT.*: PA ¹³*dul-bi*, to bathe flesh, *AM.* 52, 5, 8. Long identified (Jensen) with Syr. *dulbā* "plane" (*MA.* 1161: *ISA.* 109), *Platanus orientalis* L. occurs in the wooded mountains of W. and S. Asia Minor, and reaches a great size in Mesopotamia (*FJ.* iii, 64, 65). It is used for doors in Persia (Sykes, *Hist. of Persia*, 2nd ed., i, 29).

J. (1) ¹³ESI(KAL), *ušû*, *ešû*, (probably) a willow.

(2) ¹³ĤA-LU-ÚB, *ḫaluppu*, *Populus euphratica* Oliv., willow.

(3) ¹³A-TU-GAB-LIŠ, *šarbatu*, a willow, ¹³amPAR, the nitre therefrom.

Meissner, *MVAG.* 1913, 14, 2 ff., dup. *Mat.* 3, 2 ff.:

	¹³ ESI	<i>ú¹-šu-ú</i>
	¹³ ŠIR	<i>sa-mu²-lu³</i>
5.	¹³ ĤA-LU-ÚB	<i>ḫa⁴-lu-up⁶-pu⁶</i>
	¹³ ŠĀ-KAL ⁷	<i>ša⁸-kul⁹-lu³</i>
	¹⁰ ¹³ ŠĀ-KAL-SIG ₇	<i>ta-ra-du-ú</i>

Mat. 89, 2 ff.:

.....	<i>ú-šu-u</i>
.....	<i>nap-pa-šu</i>
.....	<i>sa-mul-lu</i>
.....	<i>ḫa-lu-up-pu</i>

Note also K. 165 (Bezold, *Cat.* i, 44):

¹³KU: ¹³ESI
¹³ŠIR: ¹³ša-mul
¹³MİŠ-MÁ-KAN-NA

¹ ff. Variants from Meissner's no. 2, K. 4257, etc. (*ib.*, p. 11) and *Mat.* 3: ¹ *Mat. e.*

² *M.* 2, *mul*, *Mat. mal.* ³ *M.* 2, *lum.* ⁴ *M.* 2, *lu.* ⁵ *Mat.* omits. ⁶ *M.* 2, *pi.* ⁷ *Mat.* GÍR.

⁸ *M.* 2, *šak.* ⁹ *Mat. ku-ul.* ¹⁰ *M.* 2 omits: *Mat.* [¹³Š]Ā-GÍR SIG₇-SIG₇ = *tar-pa*¹.

⁴ESI occurs thus in *MT.* :

(1) Simply : *ext.* : *Feet*, †, anoint, *AM.* 88, 2, 10. *Hand of Ishtar*, †, *AŠ-su* (bind ?), *KAR.* 186, 38.

(2) *Seed.* *ext.* : *Blains* (*šiggāti*), †, poultice, *AM.* 93, 2, 9, *dup.* *AM.* 32, 5, 8). Some skin-trouble (*lamšat ḫilāti*), †, apparently *ext.*, *AM.* 44, 1, ii, 15. For *aši* (appetizer) alone, anoint, *KAR.* 203, 63 (*cf.* *zîr* ⁴*ušû* of Sargon, Winckler, *Keils.* 20, 98).

Int. : *Strangury*, †, [drink], *AM.* 9, 1, 39 : *urinary trouble*, *KAR.* 193, 5 : *urinary trouble*, alone in rose-water and milk [fill the interior of the penis], *AM.* 62, 1, ii, 8. *Female disease* (prob. menorrhagia), fry, bray alone, insert in uterus on wool, *KAR.* 194, r. iv, 24.

(3) *ZID-ZID* (powder) : *Itch* (*kuraru*) in head, †, bathe in rose-water, *AM.* 5, 5, 7.

(1) ⁴ESI (= ⁴KAL), *ešû*, *ušû* (*D.* 322, 38). It occurs perhaps in De Genouillac, *ITT.* v, 3 : mentioned by Gudea as coming from a mountain (*Cyl.* A, xii, 6, 7 : *cf.* xv, 16) : as from the mountain of Meluḫḫa¹ (*Stat.* B, vi, 26) : frequently in Tell el-Amarna tablets (from Karduniyash, Bezold-Budge, *Tell el-Amarna*, no. 4, 28 : from Egypt, *TA.* i, 77), from the Mediterranean coast (Anp., *AKA.* 373, 88 : probably also Sargon ii, *Khors.* 148), and also from Mušasir (between L. Van and L. Urumieh, Sargon, *HC.* 53, l. 353). Used in building (Sennacherib, *Luck.* 96, 79) : from Sidon (Esarhaddon, *PE.* ii, 76) : used in building (Nebuchadnezzar, *ušû* without det., *NBK.* 138, 11).

In Tallqvist, *Maqlû* iii, ll. 175 ff., p. 28 : (175) *etillâ kima nûni^bi-a ina mē^{pl}-e-a* (176) *kima šaḫi ina rušumti-ia* (177) *kima šam^{am}maštakal* (v. ^{šam}DIL-BAT) *ina usalli* (178) *kima šam^{am}KANKAL ina aḫi atabbi* (179) *kima zîr i^uušû ina aḫi tâmtim* : "Go forth,² (O sorcery) like the fish from my water, like the boar from my marsh, like *šam^{am}maštakal* (soapwort) from the meadow, like *šam^{am}KANKAL* (grass) from the side of the canal, like the seed of *i^uušû* from the side of the sea." In Gudea, *Cyl.* A, viii, 24, "like the *ušû*-tree thou art established," suggests a solid root. As is seen from p. 289 it occurs alongside the trees *samu(l)lu*, *ḫaluppu* (willow), *ša(k)kullu* and *taradû* (or *tarpa*, tamarisk) : was used in making chairs (Johns, *AJSL.* 1917, 63 : Langdon, *PBS.* xii, 26, 33), chariots (at an early period, iv *R.* 12, obv. 23-4), chairs and beds (*TA.* i, 77), doors (Neb. ix, 11, in 1 *R.* 58), and even pegs for a drum (Thureau-Dangin, *RA.* 1920, 66, 27).

I think I was wrong in *AH.* in seeing in this tree the maple. Several species of maple do occur in Syria and Palestine (*FP.*² i, 280, the generic

¹ I am not convinced that the scribe was correct here in giving to the sign *KAL* the det. ⁴ : the immediately preceding passage speaks of copper from Ka-gal-ad, and the succeeding passage of *ḫulalu* (white lead) and then gold in powder "from the mountain of *Ḥaḫu im-ta-ē*", which is the same expression as is used for bringing out ⁴ESI above. It is true that *im-ta-ē* can also be used of obtaining trees (*e.g.* *Stat.* B, v, 36), and yet the "mountain of Meluḫḫa" seems a long distance away from which to bring a wood from which furniture and chariots are made. On the other hand ^{abam}ESI(*ušû*) diorite, dolerite (*DACG.* 163) came from Magan, which would coincide with the material for maceheads (dolerite) in Egypt. Jensen thought that ⁴ESI was ebony (*KB.* iii, i, 37), but Thureau-Dangin challenged this (*HC.* 53) on the grounds that it came from countries which do not produce ebony, *e.g.* from Syria, although it does not necessarily follow, as he says, that this is an essential.

² This is the phrase used in early contracts ; *e.g.* Brit. Mus. B. 27, Meissner, *Alb. Privatr.* no. 97, 12, *ina bîti kirî nig-ga itelli* "he shall leave house, garden, and house-furniture".

Arabic name being *qaiqāb*), and *VK.* 437 says that *Acer pseudo-platanus* L. is well adapted for situations near the sea, and is suitable for saddle-trees, wooden dishes, founders' patterns, etc. *MPB.* ii, 715, says "20-25 Mtr. hoch . . . Bergwälder des mittleren und südlichen Europa . . . Holz wie das anderer Arten technisch verwendet, namentlich zu Schnitzereien". *A. creticum* is found in Crete, and doubtless would represent the same kind found in Cyprus: C. Ritter (*Die Erdkunde* vii, 1, 919) includes the *Acer* among the woods of the Taurus: various kinds, Amanus, Lebanon, Beilan, *FP.*² 279.

Nevertheless, the varied-use in *MT.* is against the maple, which has practically no medical value. Its mention alongside *ḥaluppu*, and "at the side of the sea" (i.e. the southern Babylonian marshes) suggest a willow, which is of use in furniture-making like the *ušû*. For the medical uses of the willow see *p.* 292.

(2) ¹⁵HA-LU-ÚB, *ḥaluppu*, *Populus euphratica*, Oliv., willow.

It occurs thus in *MT.*:

(1) *Simply: ext.: Feet* (cannot walk), †, dry, pound, sift, warm in river-water, bathe, *AM.* 69, 2, 7. Ritual, *BBR.* no. 80, 9.

Int.: Stomachic, †, [drink], *AM.* 64, 2, 19. In Clay, *PBS.* xiv, No. 69, 48 (Cassite) *karpadallu* ¹⁵HA-LU-UB occurs in a list of vessels containing drugs.

(2) *PA* (tops): *Temples*, †, in beer-yeast bind on, *CT.* xxiii, 41, 15. *Head, etc.*, †, *ext.*, *AM.* 86, 1, ii, 8. *Childbirth*, the woman's body being full of *birdi*, her anus fallen, anoint in oil, drink in beer, *KAR.* 195, r. 28.

(3) *Seed*: Uncertain, †, poultice, *Kü.* ii, iv, 80. Against AN-TA-ŠUB, etc., AŠ-su (bind on?), *KAR.* 186, r. 41. In BM. No. 122654 (Nineveh text) ¹⁵amzir HA-LU-ÚB is a drug for sorcery (*šam uḥ-z[u] = kišpu*).

Gudea obtained it from Mt. Gubin (*ISA.* 111, vi, 44-6), using it for the "lower" construction of a building with ¹⁵NE-HA-AN (*ib.* 151, xii, 3-4). ŠE *ha-lu-* . . mentioned in Scheil, *RA.* 1921, 56, 22, 3rd Dyn. of Ur). About Gudea's time a tree of 3 cubits length and 2 ŠU-RÚ-A thickness mentioned (Thureau-Dangin, *RTC.* No. 221, r. 2). Chairs, etc., made of ¹⁵HA-LU-ÚB (Delaporte, *ITT.* iv, 7087, 3rd Dyn. of Ur: Langdon, *PBS.* xii, 1, 26, 34, not later than Cassite). *ABL.* 566, 9 ff. (late Assyrian) mentions 6 mulberry tree-(trunks), 6 cubits long, and 1 thick, with 1 ¹⁵HA-LU-ÚB of 5 cubits long and 1 thick. ¹⁵HA-LU-ÚB occurs in omens ("If (in) a field in the middle of a city ¹⁵HA-LU-ÚB comes") other trees in the same class alongside being tamarisk, laurel, pomegranate, fir, ¹⁵sarbatu (willow) ¹⁵GI.BU and palm (*DA.* 76, 29). Also similarly "If in the *mušpalu* of a city ¹⁵HA-LU-ÚB appears", alongside numerous others (Gadd, *CT.* xxxix, pl. 12, 23, and part dup., not so full, pl. 11, 51, *DA.* 84, 38).

¹⁵HA-LU-ÚB, *ḥaluppu* (v. *huluppu*, ii *R.* 45, 50, e) is the Arab. *ḥalāf*, Syr. *ḥelāphā*, *Populus euphratica* Oliv. (Meissner, *MVAG.* 1913, 2, 31) growing in wet places (*FP.*² ii, 535). Note the forms ¹⁵MEŠ-HA-LU-ÚB-MUR-RA-NA = *dupranu* (Meissner, *ib.* 21, 32) and ¹⁵HA-LU-ÚB-MUR-RA-AN-GIGIR = ditto (i.e. *ḥal-ma-at(?)*-ru, Meissner, *Ass. Forsch.* i, 22, 78), and ¹⁵HA-LU-ÚB MÁ-KAN-NA = *rutitu* (Meissner, *MVAG.* 1913, 2, 21, 40).

Rich (*Koord.* 143) mentions the weeping willow, but Ainsworth (*Researches in Ass.* 125) says that this is not met with in Babylonia.

Olivier (*Voyage* vi, 318) says that he found a kind of poplar two days above Hit. Ainsworth (*ibid.*) says that "occasional groves" of a poplar (*gharab*) on the river banks have occasionally been mistaken for willows.

Willow-bark is used in powder on ulcers, and baths from a decoction are recommended for weak children (*LPG.* 411). The bark of the "white willow" is used against purgings and menses (Hill, *Useful Fam.-Herb.* 387). Pliny (*NH.* xxiv, 37) prescribes the bark of the upper branches of the willow reduced to ashes for corns, and spots on the face; the juice from wounds in the tree for ears; the bark and leaves boiled in wine as a fomentation for sinews. *P.* 1035 prescribes salicine (from the bark and leaves of *Salix* and *Populus*) *int.* for rheumatism. Rauwolff (100) gives the differences between the *safsaf* and other willows, and says that at Aleppo a "precious and sweet water" is derived from the former. This "willow-flower water" is quoted as being made from the sweet-scented flowers of the Oriental willow (*ban ḥalāf* or *ḥilāf*, Lane, *Thousand and One Nights* i, 211).

Of the other words in these groups:

(1) *S(š)amullu* is found in Scheil, *MMAP.* ii, 127, 9 (a late Persian text, mentioning Ahuramazda) [*ep*]uš abnu ḫābu iṣṣi šamullu ú- . ., which shows that it is used in building.

(2) *Šakullu* (from the Sumerian šÀ-KAL, apparently "strong-heart"), is used for making chairs (Johns, *AJSL.* 1917, 63).

The *taradû* is a green or yellow kind. (For *tarpa'* see p. 289, n. 10.)

(3) *Nappasû*, evidently a form of the *uṣû*-willow, must surely be connected with Syr. *n^ephaš*, shake, *i.e.*, the quivering aspen or similar tree.

(4) *Rutitu*, the equivalent of the "willow of Magan", is probably cognate with the Syr. *rath* "tremuit",¹ *i.e.*, *Populus tremula* L., a tree of Asia Minor (*FP.*² ii, 503) (or, if not this species of *Populus*, the other species are sufficiently tremulous to claim identification). The Syr. *trīblā* (= *tremula*) is *P. nigra* (*FJ.* iii, 335).

(3) ¹³A-TU-GAB-LIŠ, *ṣarbatu*, a willow. ^{šam}PAR, the nitre therefrom.

Meissner, *MVAG.* 1923, 2, 26, 62 ff.:

¹³ A-TU-GAB-LIŠ	<i>ṣar-ba-tu</i>
¹³ A-TU-GAB-LIŠ-KUR-RA	ditto <i>šadi(i)</i>
¹³ A-TU-GAB-LIŠ	<i>ti-ia-a-lu</i>
¹³ A-TU-GAB-LIŠ-A-ŠAG-GA	ditto
¹³ A-TU-GAB-LIS-LĀL	<i>gir-gi-šu</i>
¹³ BIL-A-TU-GAB-LIŠ	ditto
¹³ BIL-A-TU-GAB-LIŠ	<i>kul-la-ru</i>
¹³ MİŠ-A-TU-GAB-LIŠ	<i>kap-ta-ru</i>
¹³ KUL-A-TU-GAB-LIŠ	<i>za-an-za-li-qu</i>
¹³ GURUN	ditto
¹³ BU	<i>ḫi-li-bu</i>
¹³ MİŠ — BU	<i>šu-lum</i> ditto

In *MT.* ^{šam}PAR and ¹³A-TU-GAB-LIŠ are found thus:
(a) ^{šam}PAR:

¹ Cf. *artutlu* and *ratutlu* for the anemone, p. 141.

(1) *Simply: ext.: Eyes*, frequently: (with 1 shekel of cantharides, etc.), *AM.* 8, 1, 2 (cf. 6, 3, 7, and 17, 1, 7): †, 8, 2, 1: inflamed eye, etc., apply (with copper gum, etc.), 9, 1, 34: 11, 2, 42: (with cantharides, etc.), 16, 1, 8: eyes "full of growing flesh", *ib.* 23: †, 19, 6, 12: inflamed eyes, blow in with myrrh and EME-ŠAL-LIM-salt, 9, 1, 38: (with gum of copper), *ib.* 39: (with mint), *ib.* 40. *Ears*, blow alone through tube, *AM.* 36, 1, 12. *Foul breath*, †, *AM.* 23, 1, 10: †, 25, 6, ii, 11: †, 26, 6, 8. *Toothache*, †, *AM.* 28, 1, 4. To clean *teeth*, with *Ammi* and lye, *AM.* 54, 1, r. 9. *Feet*, bray and apply alone, *AM.* 74, 1, iii, 1. *Urinary trouble*, (strangury), bray alone, mix in oil, blow up the urinary passage, *AM.* 59, 1, 23 (cf. *KAR.* 193, 18). A woman sick of NI-NE, bray alone, mix in oil, pour into the urinary passage, *KAR.* 194, iv, 12. *Itch* in head, bray (after other treatment), apply alone, *KAR.* 202, 52 (cf. *AM.* 2, 3, 4 ff.). *Blains (šiggāti)*, †, bind on, *AM.* 32, 5, 4. For MAŠ-TAB-BA, bray alone, [anoint] in oil, *AM.* 64, 1, 34.

Suppository: put to anus, †, *AM.* 94, 2, ii, 7 (cf. 57, 5, r. 8): alone, 57, 1, 3 (probably).

Int.: Alone in refined (*ḫalši*) oil, honey, and . . ., *AM.* 53, 10, 5. *Stomach*, alone, drink, *Kū.* ii, i, 31, and ii, iii, 61. *Jaundice* in eyes, alone, drink, *Kū.* iii, iv, 17. *Urinary trouble*, †, drink, *AM.* 66, 7, 15 (one of 37 drugs, drink, *KAR.* 193, 4. *Anus-trouble* with *dikša* (bruise), alone, drink in beer, *AM.* 58, 2, 5. *Cough*, alone in *kurunnu*-beer, honey, and refined (*ḫalši*) oil, let his tongue take,¹ etc., *AM.* 80, 1, 14, and 80, 7, 10: with *Ricinus* and scammony drink, *Kū.* iii, iv, 3.

Fumigate: alone for *jaundice*, *Kū.* iii, iii, 17.

"Dry" (*tabīlam*): *Eyes*, apply dry, alone, *AM.* 8, 1, 28. *Ears*, †, insert, *AM.* 36, 1, 18.

Quantities: 1 šú, *AM.* 41, 1, iv, 26: 5 grains brayed alone in oil applied to eyes, followed by (?) cantharides, *AM.* 8, 1, 30: ½ shekel, *AM.* 8, 1, 27, and 17, 4, 7: 2 shekels, *AM.* 58, 6, 2.

(2) LA (rind, bark): *Eyes*, 5 grains bray in *ḫimetu*-ghee, † (?), apply, *AM.* 92, 8, 8.

(3) Seed: *Zir šamPAR* = *zir iṣ*. . . (*CT.* xxxvii, 26, ii, 4, *dup.* *Pl.* 41, *Rm.* ii, 497, 4).

(b) *iṣA-TU-GAB-LIŠ*:

(1) BIL (ash): 1 qa with 1 qa ash of *šamAM-ḤA-RA* in uterus for some female trouble, *KAR.* 194, iv, 9 (cf. 21). . . BIL *šar-ba-te* knead in rose-water, bind on head, *CT.* xxiii, 32, 1.

(2) Seed: "If a man eats seed of *iṣšarbatu*, his evil will be assuaged" (*TR.* ii, 36, 1-2).

(3) PA (tops) [TU hurting (?), or sim.], †, poultice, *AM.* 43, 1, ii, 8. Uncertain, *AM.* 63, 7, 6. Uncertain, drink, *AM.* 91, 5, 1.

(4) *Ḫil šar-ba-te*, 1 of about 40, to [drink] for strangury, *AM.* 59, 1, 35. *iṣHu-pi-e šar-ba-te*, †, for white *pindū* (skin-trouble) on the body, *AM.* 84, 4, iii, 11.

šamḪil iṣA-TU-GAB-LIŠ, for cough, bray, drink alone in oil and *kurunnu*-beer, *KAR.* 203, iv, 32. *šamḪil šar-ba-ti* is a drug for *ḪAR*[^{vt}] (?), lungs (?), Meek, *RA.* 1920, 179, S. 22, 14. *Ḫil šarbatu* thus coincides with the prescriptions for *šamPAR*.

¹ See *RA.* xl, 109.

The important equivalence . . . ^{šam}PAR šá A ^{šA}-TU-GAB-LIŠ *šum-šu* (*AM.* 40, 5, iv, 3) . . . “^{šam}PAR, of which the name is ‘water of *šar-ba-tu*’” is paralleled by Smith, *CT.* xxxvii, 32, 108860, 13-14 :

^{šam} PAR . . . . .	|	^{šam} hîl ^{šA} -TU-GAB-LIŠ
^{šam} šá-mu pi-šu-u	|	šam ditto

^{šam}PAR is thus a white drug which is the water as well as the gum of the *šarbatu*-tree. In *MT.* ^{šam}PAR is used *ext.* for eyes, ears, foul breath, toothache, feet, blains, and as suppository : *int.* for jaundice, strangury, and cough ; to fumigate : and the rind and seed also exist. Of the *šarbatu*-tree the gum is used, as well as the ash, seed, and tops. Curious is the use of “^{šam}PAR dry” which shows a difference between this gum and all the others (which are never thus limited), so that presumably it was normally exhibited as fluid.

Gudea planted an ^{šA}-TU-GAB-LIŠ-tree in his city in Babylonia (“it spread its shade”) (*ISA.* 165, xxii, 18). Mentioned in Shulgi’s time (*Türk.* No. 121). In De Genouillac *ITT.* v, 3, one of 7 cubits is mentioned ; the diameter might be 2½ cubits ; and the value ⅓ shekel when 6 cubits long. An OB. letter speaks of 660 ^{šA}-(TU)-GAB-LIŠ and 60 ^{šA}šuhî (*fir*) (to come by boat ?) (*Kraus, Altb. Briefe*, 2, No. 1, *MVAG.* xxxvii, 1, 1932).

It grew in groves (*V R.* 26, *g-h*, 19). Chairs could be made of it (*Johns, AJSL.* 1917, 63). Esarhaddon (*CT.* xxxiv, 1, iii, 3 ff.) says *ušabši-ma GI-SUK^u u šar-ba-ti ina kirbi-šu MA-GAL išir-ma ušarriša papallu*, which suggests that it needed water when transplanted to his abode.

It is brought into connection with another tree the tamarisk : “In (under) a *šarbatu*-tree he lies, sated with woe, in (under) a ^šŠINIG-A (tamarisk) he lies, sated with misery” (*CT.* xv, 27, 42 : Zimmern, *Sum.-Bab. Tammuz-Lieder*, 235. To the seed is attributed a peculiar virtue : *Šumma zer šarbatî ikul limuttu-šu ippaṭir* “if he eats the seed of the *šarbatu*-tree, his evil will be loosed” (Boissier, *Divin.* ii, 36).

In the seventh century glass-texts, while the wood of the ^{šA}-TU-GAB-LIŠ is specially recommended for the fuel, the ^{šam}PAR is included in the composition of the first glaze (*OTC. pl.* 1, l. 10, and l. 14). It is this which threw doubt first on my identification of the *šarbatu* with styrax. We can first discuss the suggestion : Meissner had thought it was the mulberry, which I think impossible (*MVAG.* 1913, 2, 61). There seemed to be good reason for styrax as a possibility : there was the gum : the Arab. *libnah*, the Heb. *libhneh* “the white”, was the same as ^{šam}PAR (“white”), the Syr. *sârû* sounds much like *šarbatu*, and there is an Arabic *šrb* for a red gum (Lane, *Dict.* 1674) said to be the gum of the *tlh* acacia or the *rqṭ* species of mimosa. Indeed, we have also to consider the form ^ššarbutu, ^ššulupu,¹ distinct from ^ššarbatu. It is true that “1 ^ššablu A-TU-GAB-LIŠ occurs in the glass-texts (no. 5, viii, 19, cf. no. 20, 10, 1 *šablu ša šar* . . . , and 1 *šablu šar-bi* . . . , no. 2, iii, 12). This tree was grown especially in the north-west of Assyria in the Harran district. *Johns, DB.* no. 3, i, 6, mentions an estate bearing ^ššar-bu-tu,

¹ Note that *luluppu* is another value for ^{šA}-TU-GAB-LIŠ, perhaps a doublet of ^ššulupu.

¹²*ulupu* (pistachio ?), and *qan-ni za-am-ri*. Pliny (*NH.* xii, 40) speaks of a wood imported by the Arabs from Carmania called *stobrus* or *storbis* (Lewis and Short, *Lat. Dict.* 1880, 1767), which they employed in fumigation for promoting sleep, for which they opened a depot at Harran, while in the same chapter he speaks of storax from Syria. Whether he intends any connection between the two is uncertain, but there is certainly an outward appearance of similarity between the words *storbis* and ¹³*šarbatu*.

But, on consideration, it will be seen that ¹³*šarbatu* cannot mean styrax or storax. In the glass-receipt mentioned above the ¹⁴*sam*PAR is to be used thus (*OTC. pl.* 1, 13 ff.): "If clear glaze is for thee to make, thou shalt crush separately 10 *mana* of sand, 15 *mana* of ash of alkali, 1 *mana* of ¹⁵*sam*PAR, mix together, and put them down in the furnace," etc. Similarly, 6 shekels of ¹⁶*sam*PAR is to be added to the ingredients of *uqnu me[rku]* (*OTC. pl.* 3, 69).

Now this mixing before firing makes any hope that ¹⁷*sam*PAR is a gum intended to make the glaze adhere to the brick impossible. Almost equally unattractive, although perhaps possible, is that the ¹⁸*sam*PAR was introduced thus to prevent too great a proportion of sandiver or scum (*DACG.* xxviii). I think that both must be relinquished.

We must turn to some other possibility. The Arab. *gharab* "willow" coincides philologically with ¹⁹*šarbatu* (the equivalence with ²⁰*sam*urbatu was long ago given up). This, as one of the regular sources of fuel at Mosul, at once parallels the use of ²¹*A-TU-GAB-LIŠ* (*šarbatu*) laid down as fuel for the glass-furnaces: willow is the easiest firewood obtainable in Mosul (brought in nowadays on donkey-back) and cheaper than the better dwarf oak, which has to be brought in from further afield.

More important than this is the nitrous product of the willow, which will coincide with ²²*sam*PAR. *Ib.* 381 says about nitre in general: "le nitre artificiel est celui que l'on appelle chez nous natrouنطرون. C'est un sel cristallisé sous forme de fragments brillants. C'est avec ce sel, une dissolution de plomb رطوبه الرصاص et de la soude کلی que l'on fabrique le verre en les mêlant ensemble et les soumettant au feu. Il (Ibn Ouafed) ajoute: Razès, dans son livre intitulé *Introduction théorique المدخل التعليمی*, dit qu'il y a plusieurs espèces de nitres: celui des orfèvres, qui est blanc, l'écumeux زبدی qui est le meilleur de tous et dont le couleur est d'un rouge terreux: un autre provenant du saule غراب et un autre, qui est le tencar تنكار, dont on cache la fabrication." Cf. also *ib.* 1631: "on recueille sur les troncs une sorte de sel blanc, délié, que l'on appelle *sel de saule* et que s'emploie comme le nitre et les autres sels." Still more striking is the confirmation of this from Rauwolff (ii, 173) when he reports (between Haditha and Feluja) "the Gun-powder is not made from Salt-Peter, as ours is, but out of another Juice, which they take from a Tree that is reckon'd to be a kind of Willow, known to the *Persians* by the name of *Fer*,¹ and to the *Arabians* by *Garb*".

Here, obviously, we have a substance, nitre, from the willow, which can be added to glaze (the other two components in the Assyrian text

¹ Curiously similar in sound to our ²³*sam*PAR.

being sand and alkali); indeed, there are few, if any, other substances which apply so well. Since it appears spontaneously on the trunks, the word *hīlu* "gum" is entirely applicable.

With *šarbatu* as the willow-fuel for the furnaces, and its "gum", *šam* PAR, as the willow-nitre, and the Arab. word *gharab* = *šarbatu*, we may accept the identification as certain. In medicine *IB.* (*ib.*) says that it is used for wounds; the leaf int. causes sterility, but is useful against hæmorrhage, and its juice for bile. It is worth comparing the Indian uses of (a) *Populus nigra* L., with its depurative bark: (b) *P. euphratica* Oliv., with its bark as vermifuge: (c) *P. alba* L., with its bark used for purifying the blood and in skin diseases, and said to be useful in strangury (*IMP.* ii, 1220 ff.). *IB.*, no. 724, gives the following medical uses of the White Poplar (Arab. *hawwar*): the bark int. against sciatica and strangury: said to prevent conception when used with a mule's kidney, the leaf acting in the same way after menstruation; the juice of the leaf in ear-ache. He also discusses a gum from the Black Poplar (no. 725). I have quoted the poplar alongside the *gharab*-willow in medicine thus, since salicin is the medical product taken from the bark and leaves of "various species of *Salix* and of *Populus*" (*P.* 1035). Rich, *Koord.* ii, 169, mentions the "ghurrah": "Just below Umm-el-beia (= beida) we came to a clump of trees on the right bank; the trees were of the species called by the Arabs ghurrah." I think there is no doubt that these trees were there twenty years ago: I well remember a line of magnificent trees, outstanding in a treeless country along the river bank (the east or left bank), such as might well be sacred trees: and it is clear why Gudea planted one with the idea of its shade.

Not much can be said about the remaining tree-names in this group. *Tiálu* is given elsewhere (*p.* 285) as an equivalent of *ERIN*. *Girgišu* would appear to be the Syr. *garg'nâsâ*, *Arbutus unedo* (Holma, *Kl. Beitr.* 67), a native of the Mediterranean region; cf. my article in *PSBA.* 1908, 109. *Zanzaliqu* may be the Persian *zanzalaht*, *Melia azeder* Forsk. (*Fl. Æg.* lxi), the Persian lilac (*PC.* xv, 80), as Ruziska suggested in *BA.* v, 88: see also Holma, *op. cit.* 70). *Kullaru*, I think, must be the Syr. *k'nârâ*, service-tree. *Hilibu* (or perhaps *šargubbu*) occurs in *AJSL.* 36, 157, and *MAOG.* II, ii, 10. Meissner, *Beitr.* ii, 85, gives *šBU* = *kippatu*.

K. (1) (*š*)(*šam*)ŠE-NA-A, *š*ŠE-NU,¹ *šunû*, *Vitex Agnus-castus* L., "Chaste tree."

(2) *šam*Šišbânu, *Vitex negundo* L., or *Vitex Agnus-castus* L., "Chaste tree."

*š*ŠE-NA-A, *š*ŠE-NU, (*š*)(*šam*) *šunû*, occurs thus in *MT.*

(1) *Simply: ext.: Feet* which hurt, preventing walking, †, dry, pound, sift, heat in river-water, bathe, therewith, *AM.* 69, 2, 7. Bruise (*dikšû*) put patient therein, *AM.* 96, 1, 17. *Childbirth*, †, in water bathe, *KAR.* 195, 20.

Int.: (1 *šu*) of *ššû-nim* [probably for stone], †, prob. [drink], *AM.* 4,

¹ Kùchler's opinion (*Kù.* 93) must be right. *š*ŠE-NU occurs, e.g. *AM.* 57, 1, 2, and 58, 2, 6, where the water of it is used to bathe the patient, a very common use for the water of *ššunû* also.

4, 3 (cf. *dup.* 30, 12): *Strangury*, †, *AM.* 60, 1, 8 (^{šam}šu-un-¹, see p. 89), *Enema*: †, *AM.* 56, 1, 5.

(2) *Seed*: *ext.*: *Head* (*kuraru*, itch), †, bind, *AM.* 5, 5, 13. *Stomach*, †, poultice, *AM.* 40, 5, 11. *Lungs*, †, poultice, *AM.* 55, 1, r. 5. *Menorrhagia*, reduce, bray alone, insert in uterus on wool, *KAR.* 194, 21. *Stone* (?), †, poultice (a potion of others given him), *AM.* 2, 7, 5. *Scorpion-sting* (?), *RT.* 23, 134, cf. *RT.* 22, 160. *Ghost*, †, bind (?), (Aš-su), *AM.* 29, 1, 2 (+ *CT.* xxiii, 22).

Int.: *Strangury*, †, drink, *AM.* 59, 1, 38 (*zir šam*šu-nim). *Female ailment*, with *Asa foetida* and turpentine, *KAR.* 194, iv, 4.

(3) *Root*: *int.*: *Cough* (*hahū*) alone, drink in *kurunnu*-beer, *KAR.* 203, v, 46: cough (*sualim*) drink alone in oil and *kurunnu*-beer, *ib.* 31.

(4) *zid* (powder): *Pregnant woman*, †, in UŠ-SA-beer . . . , *KAR.* 195, 3 (^{šē}NU).

(5) ŠE-RÚ: for "poison", †, fumigate, *AM.* 91, 1, 6.

(6) "Water of šunū." For bathing the patient after completion of other treatment: *AM.* 31, 5, 3: 43, 5, 15: 54, 1, 9, 12: 57, 1, 2 (^{šē}NU): 58, 2, 6 (^{šē}NU): 61, 1, 8: 91, 1, 6: prob. 53, 1, iii, 2: 101, 1, 10, 16: in warm (BIL) water of ^{šē}NU-nim, *AM.* 83, 1, r. 21: rub in hot (*šikruti*) water of ^{šē}NA-A, *AM.* 79, 1, 15. To bathe a patient before treatment, *AM.* 24, 5, 12.

(7) PA¹ (tops): *ext.*: *Lassitude* (*rimute*), †, bind, *AM.* 52, 5, 14, (prob. *dup.* *AM.* 5, 6, 6). *Temples* and lassitude (*rimutu*), alone dry, pound, sift, bray with various flours, steep in rose-water, bind on, *CT.* xxiii, 40, 6 (*dup.* *AM.* 20, 1, 38). *Stomachic*, alone with sifted flour, in rose-water as poultice, after drinking ^{šam}imhur-pami in *kurunnu*-beer, *Kū.* ii, 1, 18. For . . . *šadani*, alone, anoint in oil, *KAR.* 203, 40. *Breast and loins*, †, prob. bind on, *AM.* 51, 12, 6. *Lungs*, uncertain use, †, *AM.* 53, 4, 19. *Anus-trouble*, †, uncertain use, *AM.* 58, 2, 7. Uncertain, †, poultice, *AM.* 68, 2, 1: 83, 1, r. 32: bind on, *AM.* 83, 1, r. 25.

(8) Some part of ^{šē}šunū is used for an uncertain disease in wool on the neck, sim. to some part of laurel (*Pl.* 23, K. 9283, 20-1).

Meissner, *MVAG.* 1913, 2, 16, 54, has the equivalence ^{šē}NA-A = šunū, and *Kū.* (93), correctly compared the Syr. *šūnāyā*, *Vitex Agnuscactus* L. But on p. 247 it also = ^{šam}šilurtu, with which Meissner (*ZA.* 1903, 249) compared the Arab. *šinār* "plane",² which, considering the proximity of *ašūhu*, *lammu*, *mehru*, and *dulbu* (p. 247) is in keeping. The *Vitex Agnuscactus*, called "chaste willow" (in spite of the use of its seeds in the cure of venereal diseases, as Pomet, *HD.* 13, points out), is "a native of the south of Europe . . . forms a shrub of about 12 feet in height. The flowers . . . have an agreeable fragrance. The fruit is globular . . . with an acid and aromatic taste . . . It was well known to the antients . . . In India the fruits of the species *V. triphylla* and *Negundo* . . . have the same properties ascribed to them . . . The antients considered the *Vitex* anti-aphrodisiac . . . The leaves of the Indian species are mucilaginous and demulcent, and are much employed as cataplasms, emollient fomentations, and medicated baths. The leaves of the European

¹ A curious use of PA ^{šē}NU-nu PA ^{šē}NA-A occurs *KAR.* 208, 12.

² The *Chinar*, the Oriental Plane, grows to an enormous size (Ainsworth, *Travels*, 35). It was noted at Sulimanieh (Ainsworth in Chesney, *Narr.* 501).

species must have similar properties . . . They were strewed upon beds, and supposed to preserve chastity" (*PC.* xxvi, 397). Pliny (*NH.* xxiv, 38) says that there are two kinds, and from these is prepared a liniment against spider-bites: the blossoms and young shoots ext. allay headache: and the seed, drunk, is a febrifuge, diuretic, and emmenagogue, and ext. a sudorific and is used for headache. Pounded with barley meal it brings tumours to a head.

Vitex Agnus-castus is found at Antioch, Mar'ash, and in the Amanus (*FP.*² ii, 322). Rauwolff mentions it (102) at Aleppo.

(2) ^{šam}Šišbānu, *Vitex negundo* L., or *V. Agnus-castus* L.

This is the Arab *saisabān*, *Dolichos sesban* Forsk.: Lane, *Dict.* 1356, c). In Persian it is given as *sisban* (*ib.*), *Vitex negundo* L., although Herzfeld (*Beih.* no. 176) gives *sizbān* (Jebel Hamrin) as the *V. Agnus-castus*. Von Opp. ii, 383, says that *saisabān* spreads over the Hauran and Mesopotamia. *V. pseudo-negundo* (Hausska.) occurs at Jericho, *FP.*² ii, 323. It was sold in Mosul as good for swellings.

It occurs in *MT.* thus:

Ext.: Some anus-trouble, †, wrap in a cloth, apply to anus, *KAR.* 201, 19 (^{šam}šiš-ba-na). *Int.*: for pain, swelling, and overmuch saliva, etc., with heliotrope and gum of Aleppo-pine, to drink in beer, *AM.* 23, 55 + 48, 3, 6 (*RA.* 1929, 78) (^{šam}šiš-ba-nam). *Stomachic*, drink, † (?), in beer, *Kū.* ii, i, 3 (^{šam}šiš-ba-nam).

Cf. the uses of *V. Agnus-castus* above. The *V. negundo* L. (Pers. *sisban*) in India is used as tonic, vermifuge, and expectorant. The leaves are discutient, and are useful in dispersing swellings of joints, and a vapour-bath of this plant is used in febrile, catarrhal, and rheumatic affections. Europeans in Bombay call it "the fomentation shrub" (*IMP.* ii, 1000; *BMM.* 431).

The medical uses of both species of *Vitex* coincide well, therefore, with the uses of these two in *MT.*

L. ^šMA-NU, *ēru*, *Laurus nobilis* L., laurel. Meissner, *MVAG.* 1913, 2, 19, 79 ff.:

.....
^š MA-NU-LÛ-A	sa'-u
^š MA-NU-MUR-RA-AN	mur-ra-nu
^š MA-NU-SIG ₇ -SIG ₇	„
^š MA-NU-DU ₁₃ -DU ₁₃	mar-tu-u
^š MA-NU-GIŠ-KAL	giš-kal-lu
^š MA-NU-KALAG-GA	„
^š MA-NU-KALAG-GA	šab-bi-tu
^š MA-NU-ŠÚ-KAL	„
^š MA-NU-TIL	hat-tu
^š MA-NU-TIL	hu-ta-ru

This occurs thus in *MT.*:

(1) Simply (much rarer than the seed): *Anus trouble*, alone in fat apply, *KAR.* 203, iv, 2, *dup.* *Pl.* 30, S. 698, 9.

Fumigation: Ears, †, *AM.* 38, 2, r. 1.

(2) *Root: fumigation: Ears*, †, *AM.* 33, 1, 35. *Ghostly attack*, †, anoint, *KAR.* 56, 10.

(3) *Seed: ext.: Eyes*, †, in kidney-suet from an ox "black as tannin on copper", *AM.* 12, 4, 5: †, in kidney-suet from a black ox, *AM.* 18, 9, 3. *Temples*, †, poultice, *AM.* 103, 39. *Hand of Ghost*, †, anoint, *AM.* 94, 2, ii, 15: †, bind on, *AM.* 70, 2, 14, *dup. KAR.* 182, r. 27 (cf. 31, *dup. AM.* 70, 2, 16 ff.). "*Poison*", †, bind on with oil and *kurunnu-beer*, *AM.* 52, 5, 15. Against seizure by some god (*LU.AN.* . .), alone, uncertain use, *BM.* 122654.

Int.: Virility charm, †, drink (?), *Liebesz.* 50, 6. *Some uterine trouble*, †, in beer drink, *KAR.* 194, iv, 8.

Fumigation: Eyes and temples, †, *AM.* 12, 4, 7. *Ears*, †, *AM.* 33, 1, 28, *dup.* 35, 1, 5. *Poison of limbs*, dry, pound, sift, fumigate in fire, *AM.* 91, 1, 7.

(4) *PA (tops): Eyes*, †, locally, *AM.* 13, 6, 2. *Temples* and "*poison*", †, bind on, *CT.* xxiii, 40, 1, 4, *dup. KAR.* 188, r. 16. *Sickness on feet*, †, apply, *AM.* 74, 1, iii, 5.

(5) *ŠE.RÙ: Scorpion-sting* (?), †, *ext.* in oil, *RT.* 23, 1901, 134, 3, cf. *RT.* 22, 1900, 159-160. Perhaps in *AM.* 92, 6, 6.

(6) *GIG.* Note "14 *GIG* ^{is}êra on red wool thread", *KAR.* 223, 4: Ebeling, *MAOG.* v, 3, l. 4: "7 *hirsî ša* ^{is}MA-NU" (thread on scarlet wool), *CT.* xxiii, 4, 13, cf. 11, 30 (presumably *GIG* is not the equivalent of *hî-ir-sî* ?): cf. also *KAR.* 194, iv, 40, thread 7 *hirsî* on scarlet and white wool with minerals to stay fluid in uterus.

Other equivalents for ^{is}MA-NU besides *êru* are: ^{is}enitum, ^{is}murrānu, *iznû* (*CT.* xviii, 3, viii-vii, 28-30: *bu*(!)-ur-ra-nu (also equated with *medlar*; Von Soden, *ZA.* 1936, 239, 151): ^{is}erinnu (*Br.* 6789). *Enitu* is also applied to the fir (*p.* 263): *murrānu*, obviously the "bitter product", from the bitter principle in the berries of the laurel ("laurine, an acrid and bitter principle contained in the berries of the laurel", *PC.* xiii, 354). Langdon (*PBE.* xxxi, 72) was right in comparing the Arab. *murrān* "dog-wood", *IB.* 2101 ("frêne, melia").¹ Note the omen: "When there is ^{šam}murrānu-ra-nu," Gadd, *CT.* xxxix, 9, 19. Cf. "the staff from a shepherd's hand", made from the ^{is}eru, *KAR.* 196, r. iv, 4, 8, the latter (*dup. AM.* 67, 1, iv, 1) with which Jensen (*Brock.* 194) compared the Syr. *môrânûthâ*, a shepherd's crook, stick, or spear. The form ^{šam}riamurrānu also occurs.

Iznû and *erinnu* are not easy to explain.

Numerous forms are given on a Ras Shamra tablet; ^{is}MA-NU, ^{is}MA-NU-A, ^{is}MA-NU-È, ^{is}MA-NU-ŠU-ŠA₅-A, ^{is}MA-NU-BÎL-LI-ŠA₅-A, ^{is}MA-NU-EDIN-NA, ^{is}MA-NU-SIG₇-SIG₇, ^{is}MA-NU-MUR-RA-AN (i.e. *murrānu*), ^{is}MA-NU-DU₁₃-DU₁₃ (the small kind), ^{is}MA-NU-GÎŠ-KALAG, ^{is}MA-NU-GÎŠ-KALAG-GA, ^{is}MA-NU-ŠU (Thureau-Dangin, *Syria* 1931, *pl.* xlv).

^{is}Ê-ra occurs in the Epoch of Agade (Thureau-Dangin, *ITT.* i, 1088). Gudea dedicates 60 talents of ^{is}MA-NU (*Stat.* G, vi, 12: *ISA.* 130): ^{is}MA-NU mentioned, De Genouillac, *ITT.* ii, 1, 631 (Ibi-Sin): *TUrk.* 121, xv, 16, ii, 7 (Bur-Sin). It (or its gum) was used for making small magical

¹ The *murrān* = ash, fraxinus, in the list of Iraq-Arabic words, Weissbach, *LSS.* 1930, 321 ff. Post (*FP.*² 1, 576) makes it the Laurestinus, *Viburnum Tinus* L.

figures (*BBR.* nos. 46-7, 12 ff.), but apparently the tree was not used in building.

At one time ^{is}*êru* was identified with the Syr. 'arrâ "tamarisk". But the tamarisk group (^{is}*bînu*, etc.) is kept distinct from ^{is}*MA-NU* (a distinction also in the omens, although in this case not entirely convincing (*DA.* 76, 22, 23)) and in *MT.* the two, ^{is}*bînu* and ^{is}*êru* are mentioned side by side (*AM.* 4, 6, 10, and probably 13, 6, 2). The word is most suggestively written ^{is}*e'-ri* (Meissner, *MVAG.* 1913, 2, 20 ff.), which definitely points to the connection with the Arab. *ghār*, *Laurus nobilis* L., *FJ.* ii, 119). This shrub is found in the Amanus and Lebanon in thickets and woods (*FP.*² ii, 482) and in Asia Minor (*BMP.* no. 221).

The medical uses of laurel coincide well enough with *MT.* The leaves and fruit are aromatic and stimulant, it is a reputed narcotic, and the leaves are said to be diaphoretic. An oil is made from its berries. It was formerly used for colic and amenorrhœa (*BMP.* no. 221). Pliny (*NH.* xxiii, 80) says that the leaves, bark, and berries are of a warming nature; the leaves are used int. for the bladder and uterus, and ext. for stings and eyes; the bark of the root for calculi and for the liver, and the berries promote menstruation.¹

M. ^{is}*Elammaku*, perhaps *Santalum album* L., sandal-wood.

This occurs thus in *MT.* :

(1) *zid-zid* (powder). For head with *kuraru* (ringworm), †, wash in rose-water, *AM.* 5, 5, 7 (cf. 9). Uncertain use, *AM.* 40, 5, 6.

A practice tablet of the 3rd dyn. of Ur gives ^{is}*e-lam-qu* = *e-la-ma-ku-um* (Scheil, *RA.* 1925, 48). The wood is used for making *itkurtu*² and *paššuru* (dish): Tushratta sends an *itkurtum* ša *elammaki* to Amenophis III, iii (*TA.* no. 22, iv, 6; cf. 25, iv, 64). *GE.* viii, v, 46, speaks of a *paššuru* of ^{is}*elammaqu*, which appears to have contained a mixture of honey and *himetu*-ghee. Sennacherib uses the wood in building his palace (*Luck.* 119, 21).

It is possible that this is the *almug* (*algun*)-tree of the OT. (see *AF.* 53), usually taken to be Sandal-wood (*Santalum album* L.) from India, a very hard, close-grained wood used for carving and cabinet work (*Guide to the Exhib. of Animals, etc., in the Bible*, 24). In Indian medicine the wood, ground to paste with water, is commonly applied to local inflammations, to the temples in fevers, and to skin-irritations to allay heat and pruritus (*IMP.* 1119). This coincides remarkably with the (rare) Assyrian use above, and may give a good indication of the exact meaning of *zid-zid* which must thus mean a very finely ground powder, as would be expected.

N. ^{is}*q*GIR, *âsu*, *Myrtus communis* L., myrtle.

Long identified with the Syr. *âsâ* "myrtle", *Myrtus communis* L.

¹ The narcotic effect of the laurel may be seen perhaps in the Assyrian charm to secure pleasant dreams (*KAR.* 53, 7): "Recite the incantation three times over laurel (^{is}*MA-NU*), put it on thy head; tie hellebore (^{is}*am*KUR . KUR) in thy headband (KUR-sig = *ulinnu* or *sissiktu*, lit. 'hair-cloth'), sleep, and thou shalt see a fair dream." While the laurel is a narcotic, the hellebore was probably used as a brain-stimulant, regarded in the light of its ancient value against madness.

² *Itgurtu* would appear to mean "needle" (*DACG.* 120) or perhaps even "fork" (i.e. paradoxically, without prongs), although such a gift would appear trivial.

It grows in the Mediterranean region (*EB.* xith *ed.*, xix, 115), Palestine, and Syria (*FJ.* ii, 258, which gives the Arab. names as 'ās, *rīhān*, *hemblās*, *mersīn*), also in Fars (Herzfeld, *Beih.* ii, 34). Rich mentions myrtle carried in bags by Kurds near Hamrun "used, I believe, in the dyeries" (*Koord* 43).¹ The Talmud says that it was held in the hand by people dancing in front of the bridal procession (*FJ.* ii, 268), and it decks Mohammedan tombs, as well as being strewn on coffins (*ib.* 269). Myrtles are common at Aleppo, their roundish berries being regarded as very good to eat, and the plant is put round graves (Rauwolff 65, and at Tripoli also round graves, *ib.* 46).

In medicine the myrtle is aromatic and astringent, and an infusion of the berries is used for leucorrhœa and prolapsus of the uterus, and a powder from the leaves for eczema, wounds, and ulcers (*BMM.* 305). It gives a transparent aromatic oil which appears to lessen expectoration (*cf. MT.*, below). Pliny (*NH.* xxiii, 81) says that the berries are good for blood-spitting and dysentery, and act astringently on the bowels, and are diuretic: they impart an agreeable smell to the breath: and they are used ext. for ulcers, ophthalmia, scorpion-stings, and tumours, and impart a black tint to the hair. The dried leaves, powdered and sprinkled on the body, check perspiration, and are used ext. for several diseases, cœliac affections being mentioned (*cf. MT.* further). In India, the leaves are used for dyspepsia, for stomach and liver, and a decoction as mouth-wash (*IMP.* i, 531). In Mosul a local chemist gave me the *habb el-'ās*, berries of the myrtle, "from the mountains," as stopping diarrhœa.

8 *mana* of *a-sū-um* was worth $\frac{1}{2}$ shekel of silver at a date approximately of Sargon I, and not later than 1950 B.C. (Gelb, *Inscr. from Alishar*, 55), and 4 *mana* of *riaGIR* in Rim-Sin's period (Larsa, Ch.-F. Jean, *Bab.* xi, 1929-30, 176): 1 talent of *ia-sū dam-gā-am* is mentioned in an OB. letter (Kraus, *MVAG.* 36, 1931, 1, 4, no. 3).

riaGIR, *āsu*, occurs in *MT.* thus:

(1) *Simply: ext.: Stomach*, food being returned in the mouth, † 15 carats of *riaGIR*, with various drugs in various quantities respectively in $\frac{1}{2}$ *qa*, $\frac{1}{2}$ *qa* 15 carats, 10 carats, 13 carats, 7 *KU*, and 2 carats (total 1 *qa* 7 *KU* 70 carats) poultice, *AM.* 49, 6, r. 2. "Poison," †, poultice, *AM.* 98, 3, 9.

Int. (?): "When a man's saliva comes in (from) his mouth," †, *AM.* 29, 5, 16.

Enema: Strangury, †, *KAR.* 157, r. 13: with 4 others in honey and *halša*-oil, *Kü.* 1, ii, 19.

Fumigate: Ears, †, *AM.* 34, 5, 6. Uncertain, †, *KAR.* 201, 23.

Quantity: 3 qa a-sa, *KAR.* 220, 13, *cf.* 222, 7.

(2) Oil of *riaGIR*, in same prescription as . . . *riaGIR*, †, *AM.* 98, 2, 7 (*cf. l.* 3). As medium, *riaGIR*, *CT.* xxiii, 44, 2.

(3) *zid* (flour, powder): *ext.:* blains (*šigāti*) with 55 others, *KAR.* 192, iii, 55.

KUŠ-GIR "bark of *āsu*" is mentioned on *VAT.* 12625, 11 (*D.* 10, 9).

The use in *MT.*, although it coincides fairly well with the known medical use of myrtle in ancient times, does not appear to have been very

¹ For myrtle used in Assyrian dyeing, see *uqnāti*, p. 171.

popular. At the same time the plant would probably have to be brought down from the hills, and consequently would not be commonly known. The oil is mentioned by Pliny, *NH.* xv, 35, and the fumigation, *ib.* 36.

- O. 1. ^{is}MA, *tittu*, *Ficus Carica* L., fig.
 2. ^{is}MA + GUNU, *hašhuru*, *Pirus malus* L., apple.
 3. ^{is}MA + GUNU-KUR-RA, *armānu*, *Prunus Armeniaca* L., apricot.
 Meissner, *MVAG.* 1913, 2, 15, 34: *Mat.* 63, 15-21.

^{is} MA	MA ¹	<i>ti-it-tum</i>
^{is} MA	LĀL ²	„
^{is} AMA	— GAL ³	[i-nu] ⁴ „
^{is} MA	+ GUNU ⁵	.....⁶
^{is} MA	+ GUNU KUR-RA	<i>ha-aš-hu-ru</i>
⁷ ^{is} MA	+ GUNU-BABBAR	[ka-me-eš-ša]-ru ⁸
⁷ ^{is} MA	+ GUNU KUR-RA	„
^{is} MA	+ GUNU KUR-RA	<i>ša-par-[r]u</i> ?
^{is} MA	+ GUNU KUR-RA	<i>ar-ma[n]</i> ⁹ nu
^{is} MA	+ GUNU AR-MAN ⁹ -NU	<i>šu</i> ¹⁰
¹¹ ^{is} MA	+ GUNU AR-GA-NU	<i>šu</i>
^{is} MA	+ GUNU QUR-DI(L)-LUM	<i>šu</i>
^{is} MA	+ GUNU DAM-ŠIL-LUM	<i>šu</i>
^{is} MA	+ GUNU A-AB-BA	<i>ta-mu-u</i>
^{is} MA	+ GUNU-BA-AN-ZA	<i>pi-is-su-u</i>
^{is} MA	= GUNU-ŠIŠ	<i>ši-gu-šu</i>
^{is} MA	+ GUNU GUD	<i>ar-su-up-pu</i>
^{is} MA	+ GUNU-GIŠ-MA	<i>li-na-nu-u</i>
^{is} MA	+ GUNU-GIŠ-DA	<i>ka-meš-ša-ru-u</i>
^{is} MA	+ GUNU-BABBAR	<i>sip-pi-ru-u</i>
^{is} MA	+ GUNU-ZIMBIR	„

Thureau-Dangin, *Syria*, 1931, *pl.* xlvi, gives the Ras Shamra version: ^{is}MA, ^{is}MA-MA-ERI¹, ^{is}MA-SU-EDIN², ^{is}MA-NIM-MA³, ^{is}MA-MAR-TU⁴ (the last four special kinds of ^{is}MA from Ma'eri, Subarti, Elam, Syria), ^{is}MA *še-ir-qu* (see p. 304, ^{is}MA *še-ir-qu*), [^{is}]AMA-MA(!), [^{is}]PA-MA (*i.e.* *arat titti*), [^{is}]MA + GU⁵NU, [^{is}]MA + GUNU-GAL, [^{is}]MA + GUNU KUR-RA (twice), ^{is}MA + GUNU *ar-mi-an-nu-um*, [^{is}]MA + GUNU *gur-di-mi-an-nu-um* (= *qurdillum*), [^{is}]MA + GUNU *dam-ši-mi-an-nu-um* (= *damšillum*),¹² [^{is}]MA + GUNU A-AB-BA, ^{is}MA + GUNU BA-AN-ZA, [^{is}]MA + GUNU-IGI-SIG₇, . . . ŠE-GA, . . . ŠE-KUD-DA, . . . -šu-*hi*.

Cf. *Mat.* 89, 10-12:

¹ *Mat.* (glossed) ^{is}PI-EŠ-ŠE MA.

² *Mat.* (glossed) ^{is}MA(*sic*)-LĀL-LĀL.

³ *Mat.* MA (for GAL?).

⁴ *Mat.* (glossed) ^{is}PI-LIK MA + GUNU.

⁵ *Mat.* *haš.*

⁶ *Mat.* *ka-me-eš-ša-ru*.

⁷ *Mat.* *ma*.

⁸ *Mat.* omits the following to end.

⁹ *Mat.* *i-nu* . . .

¹⁰ *Mat.* „ . . .

¹¹ *Mat.* omits the following to end.

¹² "Véritables barbarismes," but, as M. Thureau-Dangin shows, the former gives the correct reading *qurdillum*, not *šaddillum*.

.....	[ša]l-lu-ru
.....	ti-'-it-tú
.....	haš-hu-rum

1. ^{is}MA, *tittu*.

We have first to make sure of the distinction in meaning between ^{is}MA, *tittu* (D. 342, 25) and ^{is}MA + GUNU (both *hašhuru* and *tittu*, D. 146, 3). *Tittu* has long been known as the fig, the Heb. *tē'ênâh*, and *hašhuru* as the apple, Syr. *hazzûrâ*; it remains only to settle which Sumerian sign represents the fig and which the apple, and since ^{is}MA is not given the alternative values and is only *tittu*, the obvious answer to the problem would be to keep ^{is}MA as *tittu* "fig", and ^{is}MA + GUNU as *hašhuru* "apple". This can be substantiated from the literature: in the Legend of the Worm (PRSM. 1926, 59) Shamash says to the Worm "I will give thee ^{is}MA *bašilti*, *armanâ* ^{is}MA + GUNU"; and here *bašilti* applies (as feminine) to *titti* and not to the masculine *hašhuri*. Moreover, it is the dried figs in which the small white worms are to be found which resemble the mythical worms which are associated with the decay in teeth in so much folklore, being even represented in the demonstrations of charlatans by small pieces of white sinew when they draw aching teeth. Dried apples, of course, are to be had in the bazaars, if I remember rightly, but I do not know of their breeding worms. Certainly the feminine form *bašilti* is conclusive.

Another piece of evidence comes from the offerings made by Nebuchadnezzar (NBK. 169, 24), where *titta pišá(a)* "dried figs" are mentioned alongside *munziqu* "raisins". Dried apples are unlikely.

By contrast, we have ^{is}MA + GUNU GIŠ-GI, the *hašhur ábi*, the "apple of the thicket", the gall-apple (p. 255). The Heb. *tappûah* "apple" is on occasion used for "gall-apple", *tappûhîm*, gall-apples from Kurdistan (FJ.² i, 632).

Finally, although the text is untrustworthy, note 12 *ka-ma-na-a-te ša* ^{is}MA (?) "12 cakes of ^{is}MA (?)", ADD. 1095, 8 (cf. the Heb. *dēbhēlēth tē'ênîm*).

^{is}MA occurs in early Sumerian times (Deimel, *Orntl.* 16, 55 ff.): Gudea's period (ISA. 123, v, 12, *Stat.* E): 3rd Dyn. of Ur (Allotte de la Fuye, *RA.* 1919, 7). De Genouillac, *ITT.* v, 3, quotes "wood of 6 cubits" from ^{is}MA. In the Akkadian text of Sargon I's expedition to Asia Minor, the Mountain of Galašu affords lapis, gold, ^{is}MA + GUNU, ^{is}MA, ^{is}šimiššalu, ^{is}urzinnu (*Ficus sycomorus*), um (?) *karani* (?) (Weidner, *Boghaz K. Stud.* 6, 1922, 64).

Other forms are found, e.g. *ti-ta*, CT. xviii, 2, v-vi, 6, *tin-it-tum*, Strassmaier, *Nabonid* 709, 1, and cf. Von Soden, *ZA.* 1936, 238, 123-4:

$$\begin{aligned} ti \text{ (v. BE)}-i-nu &= til-[la]-tú \\ ti-'-u &= ti-it-tú \end{aligned}$$

^{is}MA + GU-NU-GIŠ-MA = *tinanû* (Meissner, *MVAG.* 1913, 2, 16, 50).

^{is}MA occurs thus in *MT.*, only as PA (tops):

Ext.: [*Stomach* (?)], †, mix with oil, poultice, *AM.* 57, 6, 11. [*Lungs*], †, poultice, *AM.* 83, 1, r. 22, 31 + 7, 2, 3. For "poison" and *rimutu* (lassitude), †, bathe, *AM.* 52, 5, 9. *Head*, alone (?), $\frac{1}{3}$ qa steep in milk,

shave (head), bind, *AM.* 41, 3, 2 + *CT.* xxiii, 27, 15. *Swelling*, †, bind on, *KAR.* 192, 43.

Pliny prescribes the milky juice ext., as well as the leaves and figs still green (the leaves being used for alopecia, and the young shoots of the branches for dog-bites and ulcers (*NH.* xxiii, 63). *SM.* uses the fig in plasters (see Index to *SM.* ii).

For the home of the fig, and the various kinds in the Near East, see Hehn, *Kult.* 94, 98. The Assyrian texts (Von Soden, *ZA.* 1936, 238, 126) give one other kind :

[i]n (v. *hé-en*, v. *hi-in*)-zu-ru = *haš-hu-ru*

which must surely be the Arab. "*chonşur*" (*Ficus capensis* Thbg., *FJ.* i, 225).

2. ^{is}MA + GUNU, *hašhuru*.

With ^{is}MA, *tittu*, settled as "fig" we can turn to ^{is}MA + GUNU, *hašhuru*, the Syr. *hazzûrâ* "apple" (Hommel, quoted Boissier, *TR.* ii, 70).

In the Agade period we find ^{is}MA + GUNU TAG-GÁL, ^{is}MA + GUNU, NI-BAR-DA, ^{is}BAR-DA, etc. (De Genouillac, *ITT.* v, no. 9188), and in Bur-Sin's time "5 ^{is}MA *še-ir-gu*" and "5 ^{is}MA + GUNU *še-ir-gu*"¹ (*Y. Nakahara, Sum. Tablets*, no. 19). The wood of ^{is}MA + GUNU appears to have been used in building (De Genouillac, *ITT.* v, 3).² In Hammurabi's time 8 *gur* of ^{is}MA + GUNU are recorded (Charles-F. Jean, *Contrats*, no. 148). In the Song of Mama (Old Babylonian) the poet sings "Sweeter than *hananabi* or(ma) *hašhurim*" is the Song of Mama (King, *CT.* xv, 1-2, 5, cf. 7 : Dhorme, *RA.* 1909, 13).

^{is}MA + GUNU occurs thus in *MT.* :

(1) *Simply* : for a blow (*mišitti*), †, *AM.* 76, 2, 13.

(2) PA (tops) : to cleanse *mouth*, †, wash with warm water, *AM.* 24, 5, 9.

(3) *Hašhallatu* (sour juice) : *Lungs*, †, uncertain use, *AM.* 55, 4, 10.

It is used in a love-charm (*KAR.* 61, 8 ff. ; *Liebesz.* 12) : "Either a ^{is}MA + GUNU (apple) or one (!) ^{is}NU-ÚR-MA (pomegranate) : the incantation three times thou shalt recite, give it to the woman, make her suck³ their juice ; that woman having come, he shall love her." The apple is used in similar connection in *Cant.* ii, 5. Strabo says (15, 3, 17) that in Persia a bridegroom eats an apple or camel's marrow before the consummation of marriage.

^{is}MA + GUNU occurs in the mythical description in *Tod.* 31, 3, as a comparison with the being's *kišalla* (ankle-bones).

3. ^{is}MA + GUNU KUR-RA, *armānu*.

Obviously the Syr. *hazzûrâ armēnâya* (= ^{is}hašhuru *armannu*) (*AH.* 179), the apricot. The Romans called the fruit *Armeniaca*, which led to the belief that the fruit came from Armenia, a view satisfactorily combated by M. Regnier on the grounds that snow is fatal to the early-flowering plant (*VK.* 333). *MPB.* 853 gives a rather vague "Orient" as

¹ See p. 302.

² Cf. ^{is}MA + GUNU for four doors (Allotte de la Fuye, *RA.* 1919, 7).

³ *Tu-šam-zaq-ši.* The same root occurs *AM.* 30, 6, r. 3, *ina pi-šu [ú-man]-zaq*, and *AM.* 52, 1, 17 [*ina pi*] *i-šu ú-man-zaq* (of salt) "in his mouth he shall *mazāqu*". The Worm says *lu-un-zu-qa* "let me *mazāqu* (the blood of the gums)" (*CT.* xvii, 50, 17 : cf. *PRSM.* 1926, 59). I thought in *RA.* 1929, 81 that it might be related to the Arab. *maḍagha* "chew" : in Assyrian it seems to mean to hold in the mouth, chewing or sucking, and then swallowing.

its habitat or home, which (in spite of its description "Apple of the Mountains") might allow us to see "Aramean" as the base of the word *armānu*. But whatever the origin of the word, *armānu* is certainly *Prunus Armeniaca* L., the apricot. The dried apricots, on which the Worm in the teeth is supposed to feed (^{šam}*armanā* ^šMA + GUNU, *CT.* xvii, 50 : *PRSM.* 1926, 59) are common in Mesopotamian bazaars, and doubtless, like the dried figs, as has already been said, *p.* 303, will breed small white worms which gave rise to the tradition.¹

(d) Other forms of ^šMA + GUNU may be cited :

(1) ^šMA + GUNU, *arganu*, may well be the ordinary *arganu*, the balm of Gilead (*p.* 359), the fruit being "drupaceous, roundish, oval, opening by four valves, and containing a smooth nut" (*VK.* 561). Uncertain.

(2) With ^šMA + GUNU *qurdillu*, and ^šMA + GUNU *damšillu*, *cf.* the forms of gourds, *p.* 83.

(3) ^šMA + GUNU-šiš ("bitter apple") may be the crab-apple.

(4) ^šTamû "sea-apple", some apple-like fruit growing in the tidal-water district of S. Babylonia.

(5) ^šPissû, from its Sumerian, suggests a malformed fruit.

(6) ^šArsuppu, see *pp.* 96, 104, 302.

P. ^šriaDAR-RU-UG, *dar-ru-qu*, *Prunus Persica* Tourn., Peach (?).

The Syr. *dōraqinā*, peach, is found in a shorter form *darāqan* or *durrāqī* in Arabic (*FJ.*¹ iii, 160). Since the whole genus of *Prunus* yield a gum (*VK.* 335) this is a far better comparison than the Syr. *ṭerūghā*, lemon.

Q. 1. ^šKIB, *šalluru*, *Mespilus germanica* L., medlar.

2. ^šKIB KUR-RA, *kameššaru*, probably *Sorbus domestica* L., the Service tree, less probably *Pirus communis* L., pear.

3. ^šKIB KUR-RA, *marmahu*.

4. ^šKIB KUR-RA, *supurgillu*, *Cydonia Vulgaris* Willd., quince.

5. ^šKIB KUR-RA, *ḥaḥḥu*, plum or peach.

6. *karšu*, *Cerasus Mahaleb* L., the perfumed cherry.

7. *ḥuḥumu*.

Meissner, *MVAG.* 1913, 2, 18, gives ^šKIB = *šalluru* : ^šKIB KUR-RA ("the mountain KIB") = *kameššaru* : ^šKIB-GAL ("the great KIB") = *marmahu*,² *kameššaru* : ^šKIB-PAR = *kameššaru* : ^šKIB KUR-RA = *marmahu*. In *CT.* xviii, 16, Rm. 346, 17, [*marmahu*]³ = *šalluru*. Scheil, *RT.* 1914, 188, 7 ff., gives ^šKIB = *šal-lu-[ru]*, ^šKIB-GAL = *ḥa-aḥ-[ḥu]* : ^šKIB KUR-RA = *ka-meš-še-[ru]* : ^šKIB KUR-RA = *su-pur-g[i-lu]* : ^šKIB KUR-RA = *ar-[ma-nu]* (or *ar-[sup-pu]*) : ^šKIB-GAL = *ar- . . .* *VAT.* 9000 (*dup.* Pl. 40, 82-5-22, r. i, 8-9, *cf.* Pl. 31, K. 8546, r. 21 : see for text under ^šLAM, *p.* 247) gives ^{šam}KIB = ^{šam}*ḥa-aḥ-ḥu*, ^{šam}KIB KUR-RA = ^{šam} , , , *rabû(u)*. *CT.* xviii, 3, viii-vii, 21, gives *ú-ri-ib-ḥu* = ^šKIB, and Von Soden (*ZA.* 1936, 239, ll. 149-150) *ú-ri-ib-šú* (v. *ḥu*) = *šal-lu-ru*, and *bu-ur-ra-nu* = , , (i.e. *šalluru*).

We can discuss :

¹ The PA (top) of a ^šMA + GUNU KUR-RA is prescribed for feet in *AM.* 68, 1, 16, †, prob. ext.

² Meissner, *Suppt.* pl. 23, Rm. 367, has *mar-maḥ-ḥu*.

³ Hardly [*ḥa-aḥ-ḥu*].

1. ^{is}KIB as equivalent to *šalluru* (= *marmahu*), *uribhu* (= *burranu*), and *hahhu*.

2. ^{is}KIB KUR-RA = *kameššaru*, *kamešše[ru]*, *marmahu*, *supurgi[lu]*, *armānu* (or *arsuppu*), and *hahhu rabū*.

3. ^{is}KIB-GAL = *marmahu*, *kameššaru*, *hah[hu]*, *ar* . . .

It is obviously difficult to distinguish these various forms of ^{is}KIB without a context.

^{is}KIB-GAL, one of the words for the *kameššaru* which was with reason compared by Holma (*Kl.B.* 73) to the Arab. *kumathirah* "pear". If this be correct, we may see in the smaller fruit, ^{is}KIB, *šalluru*, the Arab. *za'rūr*, a doublet for the medlar and the *Crataegus Azarolus*. The latter is probably the Assyrian *arzallu* (p. 317), but it may well be that we have the other meaning "medlar" in this second word *šalluru*. This is in keeping with what we know of it: there is a contract for "3 *gur* of grapes (*karani in-bi*), 30 *qa* of ^{is}KIB ('medlars') on the tree" (tenth year of Nbn., Peiser, *KB.* iv, 243, no. 39). Note particularly K. 2918, rev. 1 (*RA.* xvii, 131), where the flesh (of a new-born infant?) is said to be peeled off (*nasih*) like *šalluru* (if the reading be *šal-lu-[riš]*, after ^{is}KIB in left column). "^{is}Šalluru are his *kišilla*" (some part of the body) (Ebeling, *Tod.* 47, 11), which may be contrasted with (*ib.* 31, 3) "^{is}hašhuru (apples) are his *kišalla* (ankle-bones)". In the text of Sargon of Agade (Weidner, *Der Zug Sargons*, *Boghaz K. Stud.* 1922, 69) it is mentioned, along with ^{is} . . . (?), figs, grapes, ^{is}LAM-GAL (pistachio), and almond-trees. 450 *ibisu* of ^{is}KIB are mentioned as being for planting in the Assyrian letter *ABL.* 813 (see p. 307). ^{is}Kakkul (baskets?) of ^{is}MA (figs) and ^{is}KIB (medlars) are mentioned, *ADD.* 942, 3, 4.

Curiously in contrast to *šalluru*, which is not included in the values for ^{is}KIB-KUR-RA ("KIB of the mountains"), is the Syr. *hazzūra dh'bharrā* "wild apple" = medlar.

^{is}KIB occurs in *MT.* in the use of its PA (leaves) and *hašhallatu* (sour juice) thus:

(1) PA (leaves): *Feet*, †, bind on, *AM.* 68, 1, 2: *ib.* 16 (*dup.* 65, 1, 6; *JRAS.* 1937, 266): *ib.*, r. 24 (doubtless to bind on: †, bathe, feet, *AM.* 15, 3, 21 (*cf.* *KAR.* 192, 1 ff.; *JRAS.* *ib.*, 283). *Bruises or swellings*, †, wash, *AM.* 52, 5, 9.

(2) *Hašhallatu* (sour juice): prob. *chest* or *lungs*, †, bind on, *AM.* 72, 2, r. 4 (in this connection note *PC.* xv, 126: "the fruit [of the medlar], when first gathered, is extremely austere; but this austerity is changed soon after gathering into an agreeable acidity"). *LPG.* 313 speaks of the use of the medlar as int. only, and not ext.

Turning to *kameššaru*, there is a great probability that it should be equated with the Syr. *k'rumšā*, the *Sorbus domestica*, the Service tree, rather than the Arab. *kummithra*. *Pirus domestica*, the true Service tree, has "a green, austere fruit, which however bleets like the medlar, when it becomes tolerably eatable, though very indigestible. Its wood is very compact, and is said to be the hardest and heaviest of any indigenous in Europe" (*PC.* xix, 172). ^{is}KIB-PAR (*i.e.* the white, or the dry KIB) suggests the white flowers of the Service tree (*VK.* 328) or, better, its "austere fruit" ("like the medlar . . . only eatable when mellowed with age", *VK. ib.*), rather than the soft flesh of the pear.

The reference to the hard wood of *Sorbus domestica* suggests a possible connection with ⁴⁵MA + GUNU GIŠ-DA, *kameššaru* (Meissner, *MVAG.* 1913, 2, 16, 51). As a matter of fact, I have no recollection of the Service tree as being important in Mesopotamia, but I certainly saw the pears in the Mosul bazaars in October, and Hoefer (*Chaldée*, 181) also mentions them.

Here, in this connection, we should remember the word ⁴⁵angaše in the letter *ABL.* 813, which also mentions ⁴⁵supurgillum (quinces) after 2,350 *ibisu* of ⁴⁵MA (figs) and 450 *ibisu* of ⁴⁵KIB (medlars), all apparently for Sargon's gardens in Dur-Šarrukin (*l.* 12 and *r.*, *l.* 5). Waterman (*Letters*, No. 813) rightly takes *angaše* to be the Arab. *injās*, although whether we are to see in it here the meaning "plums" (as Waterman), or its other meaning "pears"¹ is uncertain. It would certainly suggest a doubt in the meaning "pears" for *kameššaru*, if we admit the possibility of *angaše* as meaning the same. *IB.* 1409 mentions the "gum of *ijjās*", i.e. of the plum-tree.

⁴⁵Marmahu might have its cognate root in the Syr. *rumhā* "spear", with reference to the branches of the wild medlar "armed with stiff spines", *VK.* 328".

4. ⁴⁵KIB-KUR-RA, *supurgi(l)lu*.

This occurs as a town-name ⁴⁵Supurgillu in the time of Tiglath-pileser iii (iii *R.* 9, 41), captured by the Assyrian governor of Nairi (north-west of Assyria). As a fruit it occurs along with ⁴⁵angaše (pears, less probably plums), figs, and medlars in the Assyrian letter *ABL.* 813 (see above). In *ADD.* it is not uncommon along with *andahše* (*p.* 89) and *sirdi* (bitter almonds), they being contained in *karpat*QA-ZAG (*e.g.* 1003, 1007, 1010, 1011, 1013 (written *su-par-gil-li*), 1015, 1017, etc.), pots which could also hold oil or honey (*BBR.* 67, 9, 10; 68, 14), which suggests that a jam or preserve could be made from them.

Obviously, it is the Arab. *safarjal* "quince" (*AH.* 130); the modern Palestinian *habbuš* (*FJ.* iii, 241) does not occur in Assyrian. *Cydonia vulgaris* Willd. (= *Pirus Cydonia* L.) is indigenous to Persia (H. C. Greenish, *Textbook of Materia Indica*, ivth ed. 181): Rich mentions the quince at Beestan (Kurdish Hills) (*Koord.* i, 178); it is common in the Mosul bazaars, and I have eaten an excellent jam made of it. It apparently was not used in *MT.*, but the medical value lies in the demulcent seeds, the mucilage, and the syrup.

5. ⁴⁵KIB-KUR-RA, *ḥaḥḥu*.

⁴⁵Angaše appears, as we have seen (above), to be the equivalent of the Arab. *injās*, but whether as "pears" or "plums" is uncertain. There are three other words for "plums" in Mesopotamia (Hoefer, *Chaldée*, 181), "azaz," "hough," and "kulb al-tair"; nearer to *ḥaḥḥu* than "hough" (I heard *ḥōḥ*) is the Syr. *ḥaḥḥā* "plum" or "peach." (*FJ*² iii, 165). ⁴⁵amKIB-KUR-RA "KIB of the mountains" is "the large *ḥaḥḥu*" (see *AH.* 180).

(f) *Karšu* was found in the mountains of Sinahulzi and Biruatti, probably E. of Lake Uruniah, by Sargon (*HC.* 9, 28) along with

¹ Hoefer, *Chaldée*, 181, gives it the meaning "pears", spelling it *nidjaz*: so also in N. Africa (see also Lane, *Dict. s.v. ajjās*).

šumlalû, "a sweet fragrance," as he says. It would appear to be the Latin *cerasus* "cherry", tradition saying that the tree came from Armenia, having been brought by Lucullus to Rome (*NH.* xv, 30). Inasmuch as Sargon speaks of its fragrance *karšu* must be the *Prunus Mahaleb* L., which has a very pleasant, strong scent, and is to be bought in the bazaars of Mosul. *FJ.* iii, 169, gives the Arabic *qarâsiâ*, *qaraz* for *Prunus Cerasus* L., and says that the wild cherry is found on the Euphrates and particularly in Mardin (171). "I did also find by the Shop-keepers, the white Seed of *Machaleb*, which are in hard shells, which are long and pointed, and covered without with a tender skin, like unto the *Pistachio* Nut. A great quantity of them are carried from Mecca into Syria, and used to perfume Soap-Balls. The Trees whereon they grow I did not see, yet, as I am informed, they grow hereabout, but chiefly on the Mountains that are by the way to Persia" (*Rauwolff* ii, 194).

R. ⁴⁵GIŠIMMAR, *gišimmaru*, *Phœnix dactylifera* L., date-palm.

ZÚ-LUM-MA, *suluppu*, date.

The date-palm is cultivated from Basrah northwards to Baghdad, its northern limit being practically Tuz Khurmati, on the Tigris, and Anah, on the Euphrates (I did see two or three sporadic palm-trees in Mosul in 1904, but these appeared to have vanished after the War). It demands water, and hence will not grow in the desert without it; in Basrah, where the canals are cut for the intake of tidal waters, the palm-groves are exceedingly thick and beautiful, and within these groves, at the foot of the palms, grow pomegranates and licorice, in contrast to an unnatural appearance in an omen-text where a mention is made of mandrake and figs appearing amid the palms (*King, CT.* xxix, 49, 30). It is not clear what is intended by the Assyrian phrase "a palm of (?) the north (⁴⁵GIŠIMMAR *ša pân iltani*)", unless it indicates a peculiar species which does not grow in S. Mesopotamia. At the present time the various species are very numerous (I was given the names of some seventy different kinds: cf. the forty-nine of Pliny, *NH.* xiii, 9).

The tree provides not only the important fruit, but its top is also eatable (being white and of the consistency of celery, cf. Pliny, *NH.* xiii, 9). The carpenter uses the fronds, and the builder the trunks (although they are rarely cut down until useless for fruit); the triangular and paddle-like bases of these fronds are used for fuel after the women have trimmed them from the tree, a process which gives it its well-known serrated appearance; the fibres provide cordage, and the date-stones, when ground up, a fodder for cattle, and even a substitute for coffee (*MPB.* ii, 343). Arrack is another of its products. (See Strabo xvi, 1, 14, etc., quoted Maspero, *Dawn of Civilization*, 556).

The cuneiform sign for the palm can be found in the Fara-texts (Deimel, *Inscr. v. Fara*, i, No. 196, p. 23); dates in the time of Shulgi (De Genouillac, *ITT.* ii, 1, No. 781). The dwarf-palm, the dum-palm, *Hyphæne thebaica* (Del.) Mart. (Sinai, *FP.*² ii, 557) occurs in cuneiform as ⁴⁵GIŠIMMAR-DU₁₃-DU₁₃ (= DUMU-DUMU) = *ta-a-lum* (γισμαρ δομ = θαλ on the tablet with Greek equivalents, Pinches, *PSBA.* 1902, 108). *Tâlu* is the Aram. *tâlâ*, the Iraq-Arabic *tâl* (*AF.* 54), and Landsberger (*Ana Iurîšu*, 194) says that this is the young plant of five and six years old.

¹²GIŠIMMAR-DU₁₃²¹ occurs in a ritual (BBR. 148, 23). A synonym for ¹²G.-DU₁₃-DU₁₃ (DUMU-DUMU) is *ša-kin-nu* (*kinnu* in Meissner, *MVAG.* 1913, 2, 21) (γισιμαρ δομ = σακιν, Pinches, *ib.*, and also for ¹²AMA-GIŠIMMAR, αμα γισιμαρ = σακιν). To complete the Greek equivalences there are ¹²G.-LIBIŠ-BUR-RA = *labbu* (γισιγαρ [*sic*] λεφες βωρ . . .). Cf. *MVAG. ib.*, where other equivalents for *labbu* will be found, i.e. ¹²G.-LIBIŠ-ḤAB-BA, ¹²G.-L.-GÍ-A, ¹²G.-L.-ÛG-GA, ¹²G.-L.-GAZ-ZA, ¹²G.-L.-RI-RI-GA, ¹²G.-L.-GÚ-GAR-RA.

The four year old plant is, according to Landsberger (*ib.* 194) called *ligimu*. The wild species (presumably) not properly tended must be the ¹²G.-KUR-RA "mountain palm" (= *gurummadu*) (*MVAG. ib.*).

Suḫuššu (= ¹²G.-SU-ḤUŠ and ¹²G.-DU₁₃-DU₁₃) apparently a Sumerian loan-word, must be another name for the dwarf-palm.

Various kinds of palms (dates) are mentioned, identified by the locality: *Tilmunnû* "from Tilmun" (see also Ebeling, *NB. C.* No. 20), a kind synonymous with *asnê* (for these see *Camb.* 60, 1: *LBL.* 41, 9), with which *AF.* 54 compares Arab. *'snîn*: *Makkanû* "from Magan": *Meluhḫû* "from Meluhḫa".¹ Here perhaps we may add Von Soden,

ZA. 1936, 239, 127-130:

<i>mar-ra-tû</i>	<i>gi - šim -ma - rum</i>
<i>e-lam-mit-tû</i>	"
(v. <i>ḫu-la-me-tû</i>)	"
[a p]i[l(?)ir]siti	"
<i>ar-ḫa-nu-u</i>	"

The adjectives applied to the ¹²GIŠIMMAR are: *mîtum* ("dead"), *bišu* ("rotten"), *dîšu*, *ša kalmat aklu* ("eaten by a worm"), *ša kalmat lap̄tum* ("touched by a worm"), *marru* ("bitter"), *iškurari* (v. *ašqulalu*), *naksu* ("cut"), *urrû* (similar), *šarmu* ("clipped (?)", in reference to the cutting of the branches), *napsu*, *ḫašlu*, *diku*, *ḫipû*, *litû*, *upqu*, *mušahripu*, *tuamu* ("twin"), *zikaru* ("male"), *si(n)nišu* (v. *sinniš[tu]* "female"), *ša gište* ("of the grove"), *ša gâti*, *iš(-ši) bilat* (v. *bił-[ti]*), *našû* ("bearing"), *lâ našû* ("not bearing"), *bašlu* ("ripe"), *lâ bašlu* ("unripe"). On the "male" and "female" palm note Schwenzner, *MVAG.* 1914, 3, 93.

The parts of the palm are: *PA(ârê)*²¹, used in the *Šurpu* incantation "as these *ârê* shall not return to their palm" (v/vi, 85). The top of the palm (an edible delicacy, as was mentioned on p. 308) was called *SAG-GIŠIMMAR* "head of the palm", and was used in offerings with dates, figs, etc., in Gudea's time (*ISA.* 125, 125, vi, 7). In *MVAG.* 1913, 2, 24, we also find *libbi išši* (the heart), *uquru* (Syr. *qûrâ*, Jensen, *ZK.* 1885, 26; Meissner, *MVAG.* 1916, 2, 40). The "feet" of the palm are another part; "12 feet" of great palm trees were sold for 3 shekels in the year after the defeat of Simanum (De Genouillac, *ITT.* ii, No. 929). *Sissinnu* (Jensen, *l.c.*: Meissner, *l.c.*: *sissinnu*, Torczyner, *Tempelrechnungen*, 125) = Aram. *sîsânâ*, Dattelisripe, amplified in Von Soden, *ZA.* 1936, 239, 131) in a group

¹ For various instances of these see Meissner, *MVAG.* 1913, 2, 21 ff.: *FJ.*² ii, 317. Cf. also ¹²ḫum-mu-ḫu NI.TUK.KI-e, *NBB.* No. 200, 5.

for *gišimmarum*, *ab-nu* = *sis-sin-nu* (cf. King, *CT.* xxix, 48, 9). *Tuḫallu* is the Aram. *tuhlā* "unripe date" (Jensen, *l.c.*: Meissner, *l.c.*) (*tuhalatim* is prob. the same, Kraus, *MVAG.* 1932, 1, 208). *Taltallu* is the Heb. *taltallim* (Meissner, *l.c.*: *AF.* 54). The impregnation of the female palm appears to be defined as *rukkubu* (*AF.* 54). *zú-LUM-MA, suluppu* = Jud.-Aram. *šalpūphē*, *AF.* 54.

We find also ¹G.-UD-ḪI-IN, *uḫinu*, the Aram. *'ahna*, Syr. *ḫnā* "green date" (*AF.* 54: cf. *Ana Ittišu*, 206): note an omen "in Babylon ¹G.-UŠ *uḫinu ittaši* "a male palm bore green dates" (King, *CT.* xxix, 48, 8). 20 *gur uḫini* are mentioned on a late Bab. letter (Clay, *YOS.* iii, 200, 8, cf. *NBB.* No. 200). Words relative to *uḫinu* are: ¹G.-UD-ḪI-IN-ŠAG-ZU = *šusū, sišū*, Aram. *šišin* "stoneless date" (*AF.* 54); ¹G.-UD-ḪI-IN-UD-DA = *bušul šiti*; and the adjectives applied to *uḫinu* are *matqu* ("sweet"), *dašpu* ("honey-sweet"), *marru* ("bitter"), *tābu* ("good"), *pišū* ("white"), *šalmu* ("black"), *sāmu* ("red"), *burrumu* ("two-coloured") *irqu, aruq* ("green" or "yellow", cf. *zú-LUM-MA ur-qi-e*, *KAR.* 73, 8), *bašil* ("dry" or "ripe"),¹ *arḫanū* (cf. Von Soden, *ZA.* 1936, 239, l. 130, with 244, l. 284), *ša išatu aklu* ("which the fire (!) has eaten"), *ša kalmatu laptu* ("which the worm has touched"). Other words (less easily explained) referring to the palm and its dates will be found in Meissner's list, *MVAG.* 1913, 2, 23.

Deimel (*Orntl.* 16, 1925, 55, and *D.* 15, 134) gives the various qualities of dates in the period of Urukagina (*TURk.* 121): *zú-LUM-SIG* (sweet, first quality): *zú-LUM-UŠ* (second quality): *zú-LUM-SÍR* or *zú-LUM-ŠA(G)-SÍR*: *zú-LUM-EN-TEMEN*; *zú-LUM-¹SÍ-¹GI(G)-DA GIR₁₀-RA-GAL-GAL*, "grosse Datteln von Braunbäumen mit (samen von) Schwarzbäumen *GIR₁₀-RA* (gemischt (?): *zú-LUM-¹SÍ-GAL-GAL-SU-NA* ("Datteln von Braunbäumen gross an Fleisch ?" (or "mit dicker Haut ?").

The word for the rope used by the man who climbs the palm to fertilize the dates is *tubalū* (Aram. *tubhlēyā* (Jensen, *l.c.*: Meissner, *MVAG.* 1913, 2, 41). I have seen him, carrying the pollen in a little muslin bag, as he climbs the palm with both hands and feet, having the rope in a loop round himself and the tree to support him, exactly as described in Pliny *NH.* xiii, 7. It is noticeable on one of the Tell Ḫalaf sculptures (a district far north above the usual latitude for growing dates) that this simple method of climbing the palm was unknown, for here the climber goes up clumsily on a ladder.

Dates are used in *MT.* thus:

(1) *Simply*: *ext.*: †, poultice, *AM.* 84, 4, iv, 3. *Bruise* (*dikši*), †, poultice, *AM.* 96, 1, 9: blister (*šagpanu*), reduce alone, anoint in oil, *AM.* 75, 1, iii, 27 (prob. date-stones here).

Int.: *Ears*, †, eat for seven days, *AM.* 35, 1, 9, cf. 10.

Enema (cf. under quantities): †, *AM.* 56, 1, 6, r. 13: 94, 2, 8.

Quantities: 10 carats of *zú-LUM*, †, bind on neck-muscle, *AM.* 15, 3, 19: $\frac{1}{2}$ *qa zú-LUM*, †, in enema, *AM.* 42, 2, 4, *dup.* 57, 3, r. 4. The special kind *zú-LUM-MA-NI-TUK-KI* "Tilmun-dates" is used for *blains* (*šiggati*), †, poultice, *AM.* 32, 5, 1, 2, 6, 9 (*dup.* 93, 2, rev.),² and in suppository,

¹ The modern Basrah Arabic for "ripe" is from the root *rtb* "moist". For the colours of dates cf. Pliny, *NH.* xiii, 9.

² They are offered in a ritual, Thureau-Dangin, *Rituels*, 83.

†, reduce, *KAR.* 157, r. 37. ZÚ-LUM-DIR "red dates" for temple-muscle, *ext. AM.* 19, 1, 2.

(2) *šam Išid* ZÚ-LUM "the base of the date", drink with honey and oil against the *aḥḥazu*-demon, *KAR.* 203, iv, 48, *dup. Pl.* 34, 80-7-19, 356, 6. In Mošul, in order to combat epilepsy, a sheikh comes to the afflicted man, lays a knife on his head (*i.e.* the "iron" which is of such use in driving demons away) and then dates are fumigated with incense; the sheikh utters various charms, spits on the dates, and then gives them to the patient to eat (see my article, *PSBA.* 1906, 77). (The little stalk at the base of the date is called in modern Arabic at Basrah, *guma'*, but whether we have the *šam Išid* ZÚ-LUM here is uncertain.)

(3) *Kankal* of dates: *ext.*: *Lungs*, †, poultice, *AM.* 49, 6, r. 1, $\frac{1}{2}$ *qa*: 55, 1, 9. *Loins*, etc., 2 *mana*, †, [bind on], *AM.* 51, 8, 9; for *breast* and *loins*, †, [in (?)] hot water bathe the patient, *AM.* 27, 7, 4. 2 *mana*, †, *AM.* 64, 3, 7, *dup.* 72, 2, 5.

Int.: *Cough*, with pigs' fat, etc., *AM.* 80, 7, 4.

Enema (allana): *anus-trouble*, † (?), *AM.* 47, 1, 4.

Quantities, besides those given above: 1 *mana kankal* . . . , *AM.* 50, 3, r. 5. $\frac{1}{3}$ *qa*, *AM.* 17, 8, 4. (Note that GAB *dišpi* "wax" is given as a variant of *kankal suluppi*, *AM.* 98, 2, 7).

(4) "Water of dates": *int.* $\frac{1}{3}$ *qa* with $\frac{1}{3}$ *qa* of rose-water, etc., when stomach cannot retain food, drink, *AM.* 39, 1, 9. *Strangury*, †, in milk drink, *AM.* 59, 1, 21. Uncertain, $\frac{1}{3}$ *qa*, †, *AM.* 50, 6, 9. *Head*, alone (?), with other treatments, drink, *AM.* 1, 3, 12. *Stomach*, $\frac{1}{2}$ *qa*, †, drink, *Kü.* i, i, 28. To mix IM.GÚ.EN.NA (yeast (?), *CT.* xxiii, 50, 10. In Lane, *Thousand and One Nights* (new ed., 1859) a *nebid* (wine) of dates is made with dry dates in water, which are allowed to ferment slightly.

(5) *Date-stones*: [*Swelling*], bray alone in pigs' fat, anoint, *AM.* 73, 1, ii, 6. *Temples*, thread on bind on, *AM.* 104, 25. For breach of tabu (?) †, bind on for 3 days, *AM.* 15, 3, 5.

(6) *ZID* (powder) of date-stones: *Eyes*, reduce alone, bray, in rose-water, *AM.* 8, 1, 12.

In ceremonial or ritual washing in incantations *šgišimmaru* is used in *Maglû* i, 21 (Meier), where the tamarisk "cleanses" (*elêlu*), the palm "frees" (*pašáru*), the *mastakal* (soapwort) "brightens" (*ebêbu*) and the fir-cone (*šše-ù-ku*) also "frees" (*pašáru*).

In Syriac medicine the date is used in plaisters (*SM.* ii, 156, 370), and *int.* for the chest (*ib.* 201, 202, 261, etc.), stomach (365), the colon (*ib.* 504).

The date-harvest was in Marcheswan (*i.e.* October, Schwenzner, *MVAG.* 1914, 3, 95). In 1915, on 6th October, I noted a great encampment of date-pickers to the south of Basrah, across the creek, about $1\frac{1}{2}$ miles from Ashar. To my mind these date-pickers had every appearance of being peripatetic, like the Sussex hop-pickers.

(On the subject of the date-palm in general see H. Danthine, *Le Palmier-Dattier*, 1937: Pruessner, *AJSL.* 1919-20, 213: V. H. W. Dowson, *Dates and Date-Cultivation of the Iraq*, 1921: and my article, *JRAS.* 1923, 233.)

S. (^{3am})(¹⁹)A-AM, *ildagqu*, *adaru*, perhaps *Citrus medica* Risso, Citron. Meissner, *MVAG*. 1913, 2, 19, 59 ff.: Meek, *RA*. 1920, 166 (K. 9935), 5 ff.: Langdon, *RA*. 1931, 19:—

59. ¹⁹ A — AM	<i>šu</i> (i.e. <i>ildag</i>) - <i>qu</i> ¹
60. ¹⁹ A — AM	<i>a-d(t)a-ru</i> ²
¹⁹ A-AM-KUR-RA	„ <i>šadī(i)</i> ³
¹⁹ A-AM-BÚR- ⁴ -RA	<i>nī</i> — <i>ip-lu</i>
¹⁹ A-AM-BÚR- ⁴ -RA	<i>ziq</i> — [<i>pu</i>]
¹⁹ A-AM-BÚR-RA	<i>šit</i> -[<i>lu</i>]
65. ¹⁹ A-AM-KÙ-GA	„ (?) ⁵ . . .
¹⁹ A-AM-ŠITA	„ <i>ra</i> -[<i>a-ti</i>]
¹⁹ A-AM-ŠITA-NÁ-A	„ <i>ša ina ra-ti šu</i> -[<i>nu-lu</i>] (?)
¹⁹ A-AM-KI-IN-DIR	„ <i>ma-la</i> . . .
¹⁹ A-AM-DU ₁₃	<i>lam</i> - . .
70. [¹⁹]A-AM-DU ₁₃	<i>nī-ip</i> -[<i>lu</i>]
[¹⁹]A-AM-DU ₁₃	<i>ziq</i> -[<i>pu</i>]
[¹⁹]A-AM-DU ₁₃	<i>šit</i> -[<i>lu</i>]
. . . KUR-RA	. . . . .
. . . KUR-RA	. . . . .
75. KI (?)	. . . . .

Mat. 1, ii, 3 :

3. ¹⁹ A — AM	<i>i[l-da-q-qu]</i>
¹⁹ A — AM	<i>a-[d(t)a — ru]</i>
5. ¹⁹ A-AM-KUR-RA	„ [<i>šadī</i>]
¹⁹ A-AM-KÙ-GA	„
¹⁹ A-AM-KÙ-GA	„
¹⁹ A-AM-ŠITA	<i>a — d(t)[a-ru]</i>
¹⁹ A-AM-ŠITA-NÁ-A	<i>a-d(t)a-r[u ša ina</i>
10.	<i>ra-a-[ti šu-nu-lu (?)]</i>
¹⁹ A-AM-KI-IN-DAR	„ <i>m[a-l[a] .]-</i> . . .
¹⁹ DU ₁₃	<i>nī-i</i> -[<i>p-lu</i>]
¹⁹ DU ₁₃	<i>zik</i> — [<i>pu</i>]
¹⁹ DU ₁₃	<i>šit</i> -[<i>lu</i>]
¹⁹ KUR-RA	<i>su</i> -
¹⁹ KUR-RA	<i>is</i> -
¹⁹ A-AB-BA	<i>ku-da</i> -
¹⁹ „ <i>Me-luḥ-ḥa</i>	„ <i>Me-l[uḥ-ḥa]</i>
¹⁹ GĪ — PĀR	<i>lu</i> (?) -
¹⁹ „ KUR-RA	. . . . .

¹⁹A-AM occurs thus in *MT*. :

(1) *Simply: ext.: Feet*, †, dry, pound, sift, put in river water, bathe continuously, *AM*. 69, 2, 7. For *qī mišitti* (bruise), †, bathe, *AM*. 77, 5, 11.

¹ Langdon, *RA*. 1931, *šu-u*.

³ Langdon, *ib. ša-di-i*.

⁴ Meek, *RA*. 1920, 166, BUR, adding another ¹⁹A-AM-BÚR-RA.

² Langdon, *ib., ri*.

⁵ Or *a* - . .

(2) PA (tops): *Mouth-trouble*, †, anoint tongue with *himetu*-ghee, put on tongue, *AM.* 23, 10, 4. Uncertain, † (?), boil in water and bathe, *AM.* 61, 7, 4.

(3) *Seed*: uncertain, *KAR.* 185, iii, 16.

(4) *Haṣḥallatu* (sour juice): *ext.*: †, bind on, *AM.* 72, 2, r. 3.

The omens equally with the vocabularies suggest that ¹³A-AM is a well-known tree in Mesopotamia: e.g. Gadd, *CT.* xxxix, 11, 49 (cf. 35), "if an ¹³A-AM appears in the *mušpalu* of a city, that city will conquer" (following an omen for ¹³šarbatu, willow, and preceding one for ¹³BU (cf. *DA.* 84, 22, and 36). The Semitic translation of an interlinear incantation runs (iv *R.* 27, 1-13: Langdon, *Sum. and Bab. Psalms*, 301).

Rêum bêlim ¹⁴Du'uzu *hamir* ¹⁵Ištar
(bêl Arali bêl DUL-SÚB-BA)
bînu ša ina musarê mê la ištû
kimmat-su ina šêri arta la ibnû
ildaggu ša ina raṭi-šu la irišu
(ildaggu) *ša išdanuṣ innašhu*
gû ša ina mušarê mê la ištû.

"Shepherd, lord Tammuz, husband of Ishtar, lord of Aralu, lord of Dul-subba; the tamarisk which hath not drunk water in the *musarû*,¹ whereof the branch hath sent forth no shoot in the desert: the *ildaggu* which they watered not in its pot, the *ildaggu* whereof the root has been torn up; vegetable which in the *musarû* hath not drunk water."

Whether ¹³A-AM-ŠÀ-KAL (De Genouillac, *ITT.* v, 2) is to be included here as an indication of its early presence in Mesopotamia is uncertain.

The Sumerian name ¹³A-AM suggests "water + wild ox", i.e. a strong juice: the tree grows equally with other fruit trees (pomegranate, fig, medlar, apple, *CT.* xxxix, 11, and *DA.* 84, 22). In *MT.* the few occurrences (simply, PA (tops), sour juice, seeds) are more for bathing than int. use.

I suggested in *AH.* 182 that it might be the lemon. That it could actually be the lemon is unlikely, but it might perhaps be the Citron: Bonavia (*Bab. and Or. Record*, 1888, 138 ff.) made out a good case for the existence of the latter in Assyria: he says (p. 141): "Theophrastus . . . after the death of Alexander . . . gives a very accurate description of the Persian and Median apple, which corresponds with that of the citron. The fruit was not eaten, but was used for various other purposes. It was grown from seed and fruited all the year round . . . It was common in Persia and Media." Pliny, *NH.* xii, 7, is clear: he says that the citron-tree, called the Assyrian and by some the Median apple, is an antidote against poisons, and the fruit is never eaten, but it is remarkable for its extremely powerful smell. Cf. O. Schrader, *Reallexikond. Indog. Alttertums*, 997: "In der That ist es erst Theophrast, [iv, 4, 2], welcher die früheste Kenntnis einer Agrumi-Art verrät . . . Der hier gemeinte Baum ist nach allgemeiner Annahme *Citrus Medica Cedra* 'die Zitronatzitrone', nicht, was wir heute Zitrone (= Limone s.u.) nennen."

¹ "Garden" is difficult, as the tamarisk is a wild shrub; at the same time the shrub might have been used as a hedge to a garden.

If this theory about ¹³A-AM were correct, we might see in *adaru* the Heb. *hád'hâr*, traditionally *Citrus Medica Cedra* (Löw, *Ar. Pfl.* 46) (but see *FJ.* iii, 285), and again in *ildaqu*, the word for "lemon", *ethrôg* (by a metathesis), the Arab. *utruj* or *turunj* (Lane, *Thousand and One Nights*, ii, 220) might be a possible comparison.¹ The ¹³A-AM-DU₁₃ (= *lam* . . .) "the small A-AM" might then be the lime (of Persian origin, but hardly our *lam* . . .). The lime is planted in Mosul gardens, and the fruit is brought in fair quantity from Mascat. (For an analysis of the lemons found at Kish and Ur, see *Anthropologie*, 41, 27. A lemon-pip was found at Nippur, Meissner, *Bab-Ass.* i, 209.)

T. ¹³NU-ÚR-MA, *nurmû*, *Punica granatum* L., Pomegranate.

Various species of ¹³NU-ÚR-MA are given thus (Meissner, *MVAG.* 1913, 2, 20, 10 ff.: cf. *V R.* 26, 21, g):

¹³ NU-ÚR-MA	<i>nu-ur-mu-ú</i> (v. ŠU-u)
¹³ LÂL-DAR (-RA)	ditto
¹³ NU-ÚR-MA -KU ₇ -KU ₇	<i>a-la (?) -pa-an-nu</i> ²
¹³ NU-ÚR-MA-KUR-RA	ditto
¹³ NU-ÚR-MA-KU ₇ -KU ₇ ¹	<i>ma-ai-qu</i>
¹³ NU-ÚR-MA-ZAG-GA	<i>da-aš-pu</i>
¹³ NU-ÚR-MA-ZAG-GAR-RA	<i>e-mi-iš-tu</i>
¹³ NU-ÚR-MA-BIL-LÂ	<i>en-šu</i>
¹³ NU-ÚR-MA- DÛG-GA	<i>ta-a -bu</i>

Cf. [šur]-šá-aš-mu (v. šur-šá-aš-nu, v. šur-šur-ru) = *nu-ur-mu-u* (Von Soden, *ZA.* 1936, 238, 125).

Meissner, l.c. 33, took *armânu* to be the equivalent of the Heb. *rimmôn* "pomegranate", but it was Ebeling who first suggested on the grounds of the Armenian that *nurmû* was the pomegranate. In *AH.* 281, after I had satisfied myself that *nurmu* actually was the pomegranate. Mr. C. J. S. Thompson, who was then the Curator of the Wellcome Medical Museum, showed me a late Babylonian tablet in the Collection (No. 14781), which was a contract for making a collarette, bearing on the reverse a roughly-scratched sketch of the ornament to be provided by the metal-worker, showing it to be composed of pendants of obviously conventional pomegranates (see my sketch in *AH.*). The text (l. 2) mentions 41 *nurmû hurasi* "41 pomegranates of gold". In the Tell el-Amarna letters (*TA.* No. 25, ii, 4) we find "5 *nur[m]â* of *abanš*[AG-KAL]" and in *ib.*, No. 14, ii, 47, "1 *nurimdu* ³ of silver". The pomegranate was, of course, very popular as an ornament in ancient times (1 *Ki.* vii, 42: *Hdt.* vii, 41: as a bead, Beck, *Archæologia*, 1927, 29).

It occurs thus in *MT.*:

(1) *Water*: ext.: *Eyes*, †, in honey, *himetu*-ghee, and castor oil, [apply], *AM.* 17, 4, 4. *Ears*, insert in cedar-blood, *AM.* 33, 1, 40: cf.

¹ The Skr. for lemon is *nimbuka*, the Hindustani *limbu*, *limu*, or *ninhu* (*FH.*, 2nd ed., 115). [See two articles by H. W. Glidden in *J.A.O.S.* 57, p. 381, and 60, p. 97.]

² *V R.* 26, 23, g-h, has

(23) ¹³NU-ÚR-MA -KU₇-KU₇ = *ku-tup-pa-nu*

(24) ¹³NU-ÚR [sic]-AL-ĤAB.BA = *lap-pa-a-nu*

³ This form (*nu-rim-da*) occurs *KAR.* 182, r. 24 (put on neck against ghost).

KAR. 202, iv, 23. †, [apply], *AM.* 34, 1, 18: a shekel, †, blow in by reed, *AM.* 35, 2, 2 (cf. *AM.* 36, 1, 16): †, [apply], *AM.* 37, 10, 5.

Enema: Breast affected, alone, *Kü.* ii, iii, 61.

(2) *Rind* (BAR): *Eyes*, †, apply, Scheil, *RA.* 1921, 6: "yellow eyes," prob. alone, [apply], (in contrast to LA of pomegranate, next line), *AM.* 12, 6, 7. [*Swelling*], anoint in fish-oil, *AM.* 73, 1, ii, 9. *Head*, †, in cedar-oil anoint, *CT.* xxiii, 50, 16.

(4) *Rind* (LA): "yellow eye," see *Rind* (BAR), above. *Feet*, anoint place with oil and *himetu*-ghee, dry LA of pomegranate alone, bray, apply, *AM.* 74, 1, iii, 16. *Swelling*, alone, apply, *AM.* 74, 1, ii, 16, 21: *KAR.* 192, ii, 42.

(4) *Rind* (SU): *Swelling*, feet full of blood, with gazelle-dung bray, bind on in rose-water, *AM.* 73, 1, 20 (dup. *KAR.* 192, 15).

(5) PA (tops): *Eyes*, alone, blow through tube, *Kü.* iii, iv, 5. *Swelling*, †, bind on, *KAR.* 192, 43. *Blister*, 1 shekel, alone, *AM.* 71, 1, iii, 26. Uncertain, †, *AM.* 101, 3, ii, 5-6.

(6) *Fruit*: uncertain, †, poultice, *Kü.* ii, iv, 30.

(7) *Hašhallatu* (sour juice): *AM.* 32, 6, 8: *AM.* 72, 1, r. 4.

(8) *Aban* ^{is}nur[mî (?)] (= KA — BÍR (*bi-ir*)-GIŠ-[B]ÍL), *CT.* xii, 48 vi-v, 1.

(9) *zid inbi* (flour of the fruit): †, apply to the sick place, *KAR.* 192, r. 2 (right), 17.

(10) *Root*: uncertain (jaundice), *Kü.* iii, iii, 27.

(11) Some part, uncertain, alone for woman's disease, on wool in uterus, *KAR.* 194, iv, 18.

(Note that the species ^{is}NU-ÚR-MA- KU₇- KU₇ occurs *AM.* 105, 1, 8, used with sweet oil.)

The medical use, it will be seen, is similar to that of *SM.* for the pomegranate, *i.e.* eyes (*SM.* ii, 658, juice; *ib.* 93, rind): ears (*ib.* 115, rind: 116, extract: 665, juice): abscesses (*ib.* 175, juice: 359, rind): int., *ib.*, 231, 677. Its use in *MT.* for "yellow eyes" is paralleled by its employment by Asaf (*ed.* Ludwig Venetianer, ii, 34) to get rid of gall. In India the flowers and rinds are astringent, used as vermifuge, and for the stomach; the juice a cooling drink, and the acid juice used for ophthalmia; the root-bark is a febrifuge, and is used for tapeworm, leucorrhœa, and passive hæmorrhages; the seed for the stomach (*BMM.* 304). The use of PA (tops) on swellings or blisters is reminiscent of Diosc. (i, clii), who says of the *Cytinus*, the name for the flower or part of the flower of the pomegranate, that it is used for sticking wounds together, in cataplasms, and on the gums and teeth.

^{is}Nurmû forms a group in *CT.* xviii, 2, 3-5, with ^{is}tittu "fig". In *MT.* it is prescribed for its "water", "sour juice", "rind", or "skin", PA (tops), "fruit", "flour of the fruit", and "root". The "stone" makes it clear that it is not a fig (this is probably the large hard seed of the pomegranate): as for the rinds, every visitor to the Near East will remember seeing them in the bazaars. The various epithets *matqu* ("sweet"), *dašpu* ("honey-sweet"), *emištu*¹ (presumably a feminine

¹ Read thus, instead of *simištu*, on the grounds of [^{is}NU]-ÚR-MA *e-mi-il-ta*, *CT.* xxiii, 50, 20.

from *enšu* (*emšu*) "sour", *tābu* ("good, sweet"), are all indications of the pomegranate, there being to-day three species in Syria, the sour, the moderately sweet, and the very sweet (*VK.* 355). Pliny, *NH.* xiii, 34, and xxiii, 57 speaks of nine varieties.

NU-ÚR-MA is found in texts of the 3rd. Dyn. of Ur (the skin, *su*, De Genouillac, *ITT.* v, 3, No. 6905, *pl.* 39 : *cf.* *TUrk.* 121, vi, 10, the rind for dyeing being thus recorded). NU-ÚR-MAN-SIG₅ also occurs (same date, Scheil, *RA.* 1921, 55, 20). There is a mention of NU-ÚR-MA *šarri* ("pomegranates of the King") in Bur-Sin's time (Myhrman, *BEA.* iii, No. 54). In late Bab. times they are reckoned by numbers : *e.g.* 500 ¹⁵NU-ÚR-MA, as *ginê* for Beltis of Uruk (Ebeling, *Neub. Briefe*, No. C.62, 5). The *ziqqi* are mentioned, *ABL.* 814, r. 16). The trees are designated by *gapnu* (*ga-ap-nu*), *e.g.* Strassmaier, *Darius*, No. 193, 8 "30 *ga-ap-nu šá* ¹⁵titti 20 *šá* ¹⁵lu-ri-in-du mat-qu (= 30 "vines" of figs, 20 of sweet *lurindu*). The forms ¹⁵lurimdu, ¹⁵lurindu, and even *lurinnu* (*Nbn.* 869, 5) appear to have supplanted the older *nurimdu* in these texts.

In the *Vade-mecum*, *JRAS.* 1934, 781, ¹⁵amhaza(l)lunu is used *ina parzilli* ¹⁵nurmā ("in iron and pomegranate"). If I am right in seeing the Syr. *ḥaldzûnâ*, *murex*, in ¹⁵amhaza(l)lunu, then we may see in this quotation a recipe for dyeing purple with murex, and mordanting with iron and pomegranate-rinds, the latter being well known in dyeing (*CPI.* 910). At Basrah I was told that the pomegranate rinds were ground up and mixed with water (probably the *zid inbi* of *MT.*, p. 315) and used for dyeing yellow (*cf.* Olivier, *Travels*, i, 229, for a mention of pomegranate rinds for dyeing : and also *cf.* Pliny, *NH.* xxiii, 57). In Mesopotamia, pounded pomegranate skins are used as a preservative rubbed on kelek-skins (on which the keleks or rafts float) to prevent them from rotting (Layard, *Nin. and its Remains*, ii, 98).

In an Assyrian love-charm the suitor is advised to recite a charm over an apple or a pomegranate, and then give it to the lady of his choice (see *ḥašḥuru*, p. 304). Hehn (235) thinks that the apple of Paris was the pomegranate.

Nurmā obviously contains the consonants of the Heb. *rimmôn*.

U. ¹⁵MIŠ-MÁ-KAN-NA, *musu(k)kānu*, *Morus alba* or *nigra* L., mulberry.

D. 314, 57, still quotes Haupt (*OLZ.* 1913, 489) = *Acacia Nilotica*, but I think the evidence is in favour of the mulberry.

In Samsu-iluna's time GIŠ-UK-A-NA and ¹⁵GAN were cut down in Yadiḥabu and Guti (Scheil, *RT.* 1897, 57). Tiglath-pileser iii (ii *R.* 67, 24) says that he cut down the ¹⁵kirî ¹⁵musukanni *ša* *ṭiḥ dārišu* (of Kin-zir) at Sapî, *i.e.* mulberry plantations, planted against the wall, with which *cf.* *VK.* 344 : "Some trials have been made of mulberries trained against a south wall, and the result has been a great improvement in the fruit." Sennacherib obtained the tree from the town of Ḥararate, in Babylonia, as tribute (*Luck.*, 26, 55) and Darius ([¹⁵MIŠ]-MÁ-KAN-NA) from the land of Gandari (*MMAP.* xxi, 8, 25). 6 ¹⁵MIŠ-MÁ-KAN-NA are mentioned in *ABL.* 566, 9, of 6 cubits' length and 1 *nakubu* (thickness) each.

From Anp. onwards it was constantly used in Assyrian and Babylonian buildings (see *MA.* s.v.) : it was the material for chairs (Johns, *AJSL.* 1917, 63), spindle-whorls (see further), and even pegs for

a drum (Thureau-Dangin, *RA.* 1920, 66, 27). Actually Layard (*Nin. and its Remains*, ii, 37) mentions a beam, probably of mulberry, discovered in his excavations at Nimroud.

In *MT.* it is rare: *KAR.* 208, 9, gives PA ^{is}MIŠ-MÁ-KAN-[NA] among many others, use uncertain: *CT.* xxiii, 33, 17, prescribes the PA, †, to bind on head. In a ritual (*KAR.* 223, Ebeling, *MAOG.* v, 3, 5), 30 spindle-heads of tamarisk, and 30 of ^{is}MIŠ-MÁ-KAN-NA are to be threaded on a two-coloured cloth, and then 60 knots are to be tied between them: these knots, of course, correspond to the sixty days of the two months of Nisan and Iyyar in *l.* 6. Then 30 ŠE of ^{is}MIŠ-MÁ-KAN-NA are to be threaded on red wool, and 30 knots tied; then 14 GIG of laurel are to be threaded on red wool. In *ADD.* 1042 (re-exd.) a group occurs containing PA of ^{is}MIŠ-MÁ-KAN-NA and various other fruits, as well as certain plant-drugs not defined by PA, presumably an apothecary's list.

In *AH.* 181 I suggested the mulberry as an equivalent, and I think that the evidence is satisfactory. The mulberry was cultivated very early in W. Asia, and is believed to be native to Persia, Armenia, and the Caucasus (*BMP.* No. 229: *VK.* 343). Black and white mulberries grow in Palestine (*FP.*² ii, 514) and Mesopotamia (Ainsworth, *Assyria*, 35). The wood is admirable for carpentry.

The Sumerian name "*Mêsu*-tree of Magan" suggests a belief in its origin as further south than Mesopotamia. A Semitic form of the word is given as ^{šam}sukannu in *VAT.* 9000, dup. of *Pl.* 40, 82-5-22, 576, r. i, 11. *Musukanu* has all the appearance of being the original of the Greek οὐκάμινος "mulberry". Zimmern identified the Heb. *mskn* of Is. 40, 20, with it (*ZA.* 1894, 111) and consequently we have here the Hebrew for mulberry.

V. 1. ^{šam}EL, ^{šam}akkullaku, perhaps a *Zizyphus*.

2. ^{šam}Arzallu, *Cratægus Azarobus* L.

3. ^{šam}Kalû, ^{šam}naniqu, *Zizyphus Spina-Christi* L.

The difficulty is to distinguish between the three plants. Meissner (*SAI.* 8547), from the equivalence of the stone ^{aban}EL = ^{aban}ar-zal-lu, very reasonably thought that ^{šam}EL might be the equivalent of ^{šam}arzallu. How far this may be correct depends on the Assyrian view of the similarity between the fruit of the *Cratægus* and that of the *Zizyphus* (jujube). Indeed, it is possible too, that ^{šam}EL represents the Syr. 'êlâ, 'âlâ, *rubus, paliurus*. Such an equivalence is, however, contra-indicated by *Mat.* 88, 4, 6 ff.:

[TI]M (?) - GAL	^{šam} zip-pa-[tu]
^{šam} [TI]M - GI	^{šam} [,,]
^{šam} BIL (?) . . - GAR	^{šam} [,,]
^{šam} EN-	^{šam} ,,
^{šam} zip- pa-tu	^{šam} ak-kul-la-ku
^{šam} ak-kul-la-[k]u	^{šam} EL

Some of these can be augmented from *Mat.* 86, 12-10, 14:

TIM-GI-ŠAR | zip-pa-tum | ak-kul-la-ku

and *CT.* xi, 45, i-iv, 15 :

ú-šU-UŠ	|	šam[TIM-GI]	|	... -ga-ku	|	mi-id-ru
				.. -ma-... -du		

and *CT.* xiv, 33 (K. 9182) + xviii, 21 (79-7-8, 188), joined by Langdon, *RA.* 1916, 33 :

šam-TIM-GI		mid-r[um]		.. kit (?) ..
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Cf. Meissner, *MAOG.* iii, 3, 1929, 8, 135, and 16 :

hu-ul-pat (?)		ḪUL-KI (?) -GAR		mi-id-ru
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In the *VM.* (K. 4152, *Pl.* 44, 33, K. 4140B, *Pl.* 42, 9, and "K. 11386" (prob. K. 11368), *Pl.* 42, 9, and *Mat.* 88, 1, 58), we have :

ʾarzallu		ina kibsi MAŠ-DÀ
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"*Arzallu* in relation to the footprints (track) of a gazelle".

šam_{EL} occurs in the same text (83-1-18, 692, prob. same tablet as S. 1701, Meek, *RA.* 1920, 181, *dup.* of K. 4163, *Pl.* 42, 4, and K. 8807, *ib.* 3) :

iš šam _{EL}		ina lipî šir qi(n)ni
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"iš šam_{EL} in relation to the fat of a 'snake of the nest' ".¹

The presence of these two, iš šam_{EL} and ʾarzallu, in different parts of the same text would also compel us to see a distinction between the two. Moreover, there is a contrast shown between šam_{EL} and šam_{ar}zallu by the simultaneous appearance (apparently) of both in the same prescription (containing more than 40 drugs) (*AM.* 59, 1, 37 and 39), but, apart from the fact that the det. of *arzallu* is uncertain, the presence of both might be due to an error, owing to the large number of drugs in the prescription. Such an error occurs in *AM.* 98, 3, 9, and 10, where KA *tam-tim* is repeated in the form KA-A-AB-BA, there being altogether 23 drugs prescribed.

Taking the group (c) first (šam_{kalû}, šam_{naniqu}), we get in K. 8249 (*Pl.* 31) + 82-5-22, 576 (*Pl.* 40), iii-iv, *dup.* *VAT.* 9000 :

11. šam _{na} -ni-qu	šam _{ka} -lu-u
12. šam _{ka} -lu-u ut-liš ʾú-GIR	ka-zi-ri la iši inbi-šú kima tar-ma-ni

In *DACG.* 112, I tried to show that the translation of this text indicated that we had in šam_{naniqu} the Arabic *nabq*, *Zizyphus Spina-Christi* L. : "the šam_{naniqu} = the šam_{kalû}, in the common speech 'thorn', not having juice, its fruit like a sling-bolt." This exactly describes the Arabic *nabq*, which has a drupe ovate-globular (*i.e.* approximating to the *tarmanu*, the sling-stone shape),² as large as a hazel-nut, with a rather dry

¹ See Landsberger, *Fauna*, 4, 42. It is difficult to explain either of these two.

² *Tarmanu* = *abn* saggilmul, the thunderbolt, the small nodule of iron sulphide (*DACG.* 111) : the root is *ramû* "to throw", the word itself being equated with *belu* (*V R.* 41, *a-b*, 8 + ii, *R.* 31, No. 3, 8), a weapon at one time considered "arrow (?)". *Zamarum ša beli*, *SAI.* 2847, i, is the whizzing or hissing of the missile. *Kalû*, as a mineral, has the meaning "yellow ochre" (*DACG.* 31) but whether this has any relation to the yellow colour of the *nebq* is doubtful.

astrigent pulp (*FP.*² i, 289), "oblong, about the size of a sloe, and much eaten in Egypt and Arabia" (*PC.* xxvii, 789). The lack of juice is very noticeable, as anyone who has eaten this fruit will remember.

Hence we may consider the equivalence of *šamnaniqu* with the *nabq* as certain. Indeed, there is every probability of the two words being the same, through some variation of *n* and *b*, paralleled perhaps by *aNannaru* for *aNanmaru*.

2. Next, in continuance of this value for *naniqu*, we can discuss the *šamarzallu*, which has every probability, as will be seen, of being similar.

In *AH.* 54 I suggested that the nearest Semitic equivalent to *arzallu* was the Heb. 'āzārār, *Cratægus Azarolus*, the Syr. 'azrārthā, the Arab. zu'rūr,¹ the origin of the word *Azarolus*. *C. Azarolus*, the *azarolier* of the French, is the Neapolitan medlar with a fruit like a little red cherry; but we have to consider certain variations in the meanings of zu'rūr as used by the Arabs. Lane (*Dict.*, s.v.) describes the zu'rūr as the fruit of a well-known tree of two species, red and yellow, with a round hard stone, resembling the *nabq*, now applied to the medlar; *BFO.* ii, 663, gives *sarrou*, *Cratægus Sinaica* Boiss., or *C. Azarolus* L. in Mesopotamia (see *FJ.* iii, 249 ff.). The zu'rūr of Mesopotamia has a yellow, juiceless fruit, about the size of cherries, which ripens in winter. *FJ.* iii, 141, 250, gives also as values *Rhamnus disperma* Ehrbg.: *R. Palæstina* Boiss.: and *Prunus insititia* L.

In *MT.* *šamarzallu* occurs thus:

Simply: ext.: Hand of Ghost, anoint in oil, †, and put on neck in leather bag, *AM.* 95, 2, ii, 10 (*dup. KAR.* 184, 20): anoint in cedar-blood, ditto, *KAR.* 182, r. 20. For ghostly attack on neck-muscle, †, anoint temples in oil of cedar, *AM.* 97, 4, 23. Anoint temples, †, in oil of cedar, *CT.* xxiii, 43, 5.

Int.: Strangury, drink, †, in wine or beer, *AM.* 57, 1, 33. *Hand of Ghost* seizing him and uš-uš-šú pursuing (?) him, drink, †, *AM.* 76, 1, 26 (or does the uš represent some venereal trouble?).

Obviously from these instances it is not of much medical value.

In finally deciding about its exact meaning, it should be noted (a) that in the N. Semitic districts the *nabq* is actually used for the *Z. Lotus* L., in place of *Z. Spina-Christi*, already mentioned (*FJ.* iii, 135): (b) there is another equivalence for *nebq*, 'āizran (*FJ.* iii, 138) which suggests a doublet of zu'rūr: and (c) there is an undoubted confusion in zu'rūr for *Mespilus* and *Cratægus* (*FJ.* iii, 244 ff.). There would appear, however, to be no such confusion between the *šamnaniqu* and the *šamarzallu*, so that I think we may accept the *šamnaniqu* as the *nabq* in its meaning of *Zizyphus Spina-Christi* (particularly since one of the vulgar names for it is simply "thorn"), and the *šamarzallu* as the *C. Azarolus*.

(a) Leaving *šamnaniqu* as the *nabq*, and *šamarzallu* as the *Azarolus*, we can go on with *šam*_{EL} . . which occurs thus in *MT.*:

(1) *Simply: ext.: Neck*, exact (ext.) use uncertain, †, *AM.* 14, 8, 5. *Temples*, bind, †, *AM.* 14, 2, 6. *Swelling*, †, anoint, *AM.* 75, 1, iv, 10 (+ *AM.* 18, 5): with *cannabis* in petroleum anoint, *AM.* 73, 1, ii, 8. For a woman in childbirth, her *abunnatu* (sexual part) being loosed, (but

¹ For an amusing parallel to the confusion in liquids in *šamarzallu* and 'azrārthā, cf. the Arabic *wirwir* "revolver".

it does not stop her walking), dry and bray, †, mix with geodes, anoint and bind on, *KAR.* 195, r. 30. In purifying stables, to rub on all the horses, *KAR.* 91, r. 11. In an ointment of *zid-zid* (powder) of *šušī* (willow) and of *šdapranu* (juniper), in oil, *KAR.* 90, r. 19 (*cf.* 17).

Int.: *Sorcery*, †, drink, *AM.* 48, 2, 6: *AM.* 89, 1, ii, 2: prob. *AM.* 87, 5, 11. *Lungs* (*ḥarṣī*), †, drink in beer or wine, *AM.* 48, 4, r. 10. *Strangury*, †, in strong wine or . . . , drink, *AM.* 59, 1, 37. For *venereal* (?) ("his semen cometh wittingly or unwittingly"), †, prob. drink, *AM.* 32, 1, r. 12. Some *urinary* trouble, †, drink, *Lutz. AJSL.* 1919, 80, i, 20.

(2) (*Green*) "*šam_{EL}* while it is yet green". *Head* (?), †, *AM.* 5, 2, 2. *Stomachic*, mixed with pig-fat, alone, drink, *Kū.* ii, ii, 19: drink alone, *ib.* i, ii, 9.

(3) *Seed: ext.*: *Feet*, apply locally with seed of daisy, *AM.* 74, 1, ii, 36: bind on with seed of daisy in rose-water, *ib.* iii, 8. *Swelling*, bind on. *AM.* 75, iv, 5, 6 (+ 18, 5). *Lung* trouble or *cough*, poultice, *AM.* 49, 2, r. iv, 6.

Int.: after drinking beer and a result (uncertain) follows, drink this in wine, *Kū.* ii, iii, 49.

(4) *PA* (tops). After *cleansing mouth*, †, in fat (uncertain trouble), poultice, *AM.* 24, 5, 8. Of *šam_{EL}* . . . , for *teeth*, †, *AM.* 28, 1, 8.

Now although *šam_{EL}* and *šamarzallu* are not interchangeable, the clue given by the two minerals of the same names, which are one and the same (*DAG.* 108) may help us. There are other forms of *Zizyphus*, distinct from our *Z. Spina-Christi*, e.g. the *Z. Lotus* L. ("Brustbeerbaum"), which is the Syr. *ālā*, which is conceivably the same as our *šam_{EL}*. If we follow this line up, we may see in the word *šamzippatu* (the equivalent for *šam_{EL}*) a cognate of the actual word *Zizyphus*, which appears in Arabic in the forms *zifzif*, *zifzūf*, in *IB. anzufaifa*, and in the Syr. *zuzpā* (*FJ.*² iii, 138 ff.).¹ The resemblance is certainly striking.

Again, the occurrences of *šam_{EL}* in *MT.* are certainly more numerous than those of *šamarzallu*, and there is certainly some similarity between the medical use of it and the *Z. vulgaris* in medicine. The red, oblong fruit of the *Zizyphus* is used in India in decoction as an aperient, suppurative, and expectorant, and in habitual constipation, rheumatism, and chronic skin diseases. The *Z. jujuba* Lamk. (the bark, leaves, and lac being the parts used) is prescribed as: (a) a paste, as poultice to promote suppurations of boils; (b) decoction, as astringent, and is used to check hæmorrhagic fluxes (*BMM.* 220–221). Watt (*EPI.* vi, 367) amplifies this by saying that the fruit is said to purify the blood, the bark and seeds for diarrhoea, the root in decoction in fever and delirium and, when powdered, as dressing for wounds, while the tender leaves and twigs are used in the form of paste for boils.

To sum up the distinctions: in (c) *šamnaniqu* we may see the Arab. *neḅq* in its meaning of *Zizyphus Spina-Christi*, its fruit described by the Assyrian scribe "in the words of the common people, 'thorn,' without juice, its fruit like a sling-bolt": in (b) we have *šamarzallu*, by its name the same as the *Azarolus*, the Arab. *za'rūr* and the Heb. *uz'rār*, the *Cratægus Azarolus*: and in (a) the *šam_{EL}*, which from a comparison with

¹ Note . . . *šzippati inbu mala bašū* . . . , apparently from the Amanus (Nabonidus, *BA.* ii, 217, 11).

the two similar words for stones *aban*EL and *arzallu*, *aban* should have something in common. Here we may perhaps see in the EL the Syr. 'ālā, Z. Lotus, and in its Semitic equivalent *zipputu* a cognate for the Arabic forms of *Zizyphus*.

W. *Šamru*, *Zizyphus vulgaris* L., jujube.

¹*Sallu šamri* "a basket of *šamru*" occurs in the Assyrian "contracts", ADD. 1003, 1005 (1007), 1010, etc., frequently with other fruits. More important is it that gardens of *šamri urqi* existed in and round Harran (Johns, *Domesday*, 3, i, 6: ii, 5: 3, i, 6: iii, 5, iii, 3) with 300 *qanni* (i, 8) ("slips", Johns correctly "shoots") along with 150 ²*šarbutu* (which, I think, may be storax, distinct from ³*šarbatu* "willow", which is here perhaps unlikely, and ⁴*ulubu* (*ulubu*), probably the *Pistacia vera* (p. 247). The Arabic *samūr*, the Heb. *šāmūr* is the *Paliurus aculeatus* L. (= *P. Spina-Christi* Mill, *FP.*² i, 288), common in Asia Minor, having a broad, brown fruit (i, 228; *PC.* xvii, 168). But this *Paliurus* immediately precedes the various species of *Zizyphus* in *FP.*² (i, 288, 289), and it would surely not be a serious transference to see in the *šamru* (as the presumed equivalent of the Arab. *samūr*) one of the *Zizyphi* which produces the common jujube. *Z. officinarum* Medik is the jujube, the Arab. being 'innāb, with a drupe the shape and size of an olive (*FP.*² i, 289).¹ It is a native of Syria, with a fruit blood-red or saffron in colour, sold in great quantities in Constantinople; a syrup is made of it, and when dried the fruit forms an agreeable sweetmeat. It is easily propagated by cuttings of roots or by suckers, and it grows to a height of 20 or 30 feet (*PC.* xxvii, 789). The jujube, according to Pliny (*NH.* xv, 14) was introduced into Italy in the reign of Augustus, produced from slips: "the fruit of the jujube more nearly resembles a berry than an apple." The *šamru* is apparently not prescribed in *MT.*, although the jujube (*Z. vulgaris*) has certain mild virtues (*BMM.* 219).

X. (a) (⁵*šam*) (⁶*Urzi(n)nu*, probably the same as (b).

(b) (⁵*šam*) (⁶*Mus(š)ku*, *Ficus sycomorus* L.

The equivalence of these two will be seen on p. 247, where a group includes "plum", "mulberry", "almond", and even "fir". ⁷*Urzi(n)nu* occurs in *MT.*:

(1) *Simply*: *Int.* (?): Diarrhoea (prob.),² with the astringent rinds of pomegranate, [drink (?)], *AM.* 95, 3, 12.

(2) *PA* (tops): *Swelling*, †, slit and apply locally, *AM.* 74, 1, 18, *dup.* *KAR.* 192, ii, 45. *Poultice* (disease uncertain), †, *AM.* 43, 1, ii, 8.

⁸*Urzinnu* was found in the Mountain of Galašu (where lapis and gold occur) along with ⁹*šāšhuru* (apple), ¹⁰*tittu* (fig), ¹¹*šimiššatu*, Weidner, *Boghaz K. Stud.* 6, *Zug Sargons*, 1922, 64, 29.³

¹²*Mu-us-ki* [*sic*] occurs in *ABL.* 467, r. 17: "In regard to the ¹³*muski*-trees, the trunks which the *rāb kārī* is bringing to the land of the Itai for

¹ "According to Abu'l faḍl, cited by Celsius (*Hierob.* ii, 188) 'the *samur* of the Arabs is a thorny tree; it is a species of *Sidra* which does not produce fruit'" (Smith, *DB.* iii, 1492). Forskāl (*FAe.* liii) speaks of a *zumr es-sultān* called so by the Aleppines, but obscure.

² "... ka-la-a nu-zu, "he does not know how to retain..." the recipe ending *libbē¹⁴ šū ik-ka-sa-ru* "his stomach(s) will be bound".

³ A *mur(hur)-zi-nu-um* occurs, Epoch of Ur, Scheil ("arbuste"), *RA.* 1921, 55, 21.

(šá) Iklî, in this way has he spoken, saying 'there are none, we have had none found'." Here it is undoubtedly a tree (written with *s* for š).

In *AH.* 180 I suggested as a comparison the Heb. *šiqmîm*, *Ficus Sycomorus* L., by a not uncommon metathesis when there is an *m* in the word (just as *musukkanu* is *σικκάνωσ*). In the text quoted from *p.* 247 it immediately precedes "mulberry" which, since the *Ficus Sycomorus* receives its name from its resemblance to the mulberry, bears out this meaning. (Bostock, *Pliny, NH.* xiii, 14, note 65). The tree, of which the Arab. name is *jummaiz*, is found in Syria and Palestine (*FP.*² ii, 516), and has a somewhat sweet fruit.

¹⁸GI₆-PÂR¹, *lu* (?) -

¹⁸GI₆-PÂR-KUR-RA, *ú* (?) -

These occur in the same group in the vocabulary *Mat.* 1, ii, 19-20, along with ¹⁸A-AM-ĶI-IN-DAR see *p.* 312):

¹⁸ GI ₆ -PÂR	|	<i>lu</i> (?) -
¹⁸ GI ₆ -PÂR-KUR-RA	|	<i>ú</i> (?) -

The presumption will therefore be that it is something in the nature of the ¹⁸A-AM, which I have taken to be *Citrus*, but probably, since its connection is remote in the list, not closely allied to it.

¹⁸GI₆-PÂR₁ (or PÂR₁ = TÂK) occurs in *MT.* thus:

(1) *Simply: ext.: Feet*, †, bathe continuously, *AM.* 69, 2, 7. It is described as *šammu* (*šami*) TAB-UD-DA ("a drug for the heat of the day", probably) (*mê^{vi} ina lib sikir* BA-RA, *i.e.* for bathing).

(2) PA (tops); *ext.: Feet*, with PA of licorice, PA of laurel, pine-turpentine, fir-turpentine, apply locally, *AM.* 74, 1, iii, 5: with chamomile and PA of fennel (*šamrani*) bray, apply, *ib.* 12: †, bind on, *AM.* 15, 3, 21. *Stomach*, †, poultice, *Kü.* 1, 1, 24: ii, ii, 42, 59, 63: ii, iii, 14, 60: ii, iv, 17, 53. *Anus-trouble*, †, uncertain use, *AM.* 58, 2, 7: †, poultice, *AM.* 57, 6, 10 (probably). *Venereal*, †, bind on end of penis continuously, mixed with fat, *KAR.* 193, 20 (*dup. AM.* 58, 6, 5). After *cleansing mouth*, †, boiled in water, and bathe, *AM.* 24, 5, 9. *Swelling*, †, apply, *AM.* 75, 1, iv, 10 (+ 18, 5, r.). Doubtful parts: *Ears*, reduce . . . GI₆-PÂR alone, bray, blow into ears, *AM.* 36, 1, 8.

Note the omen: "if in the *mušpalu* of a town ¹⁸GI₆-PÂR appears" (the other and following omens containing a similar protasis for the fruits (etc.), pomegranate, laurel, fig, vine, medlar, and palm (*DA.* 31, 1).

The plant would appear perhaps to be poisonous, since it is never used internally: it may appear with various fruits or laurel near a town. The best suggestion I can make for its identification is the Oleander, *Nerium Oleander* L., a native of the Near East, or *Nerium odorum* Sol. The *N. Oleander* is used in France to make a solution (of the leaves), to wash the head (*LPG.* 272). *N. odorum* Sol. (Herzfeld at Fars, *Beih.* ii, 34: Ascherson, in Löw. 422, not *N. oleander* in Persia, but *N. odorum*) is used in India, the root being for skin diseases, inflammations, and chancres; the root-bark and sweet-smelling leaves *ext.*, a decoction of the leaves for swellings, and fresh juice of the young leaves for eyes (*IMP.* ii, 800).

¹ Sometimes written ¹⁸GI₆-TÂG, *AM.* 58, 2, 7: 74, 1, iii, 5 and 12.

The oleander is certainly one of the most striking plants in the Kurdish hills, and I remember having seen it near Basrah.

^{is}ŠE-MUR.

It occurs thus in *MT.* :

(1) PA (tops) : *Ext.* : *Stomachic*, alone, boil one mana in rose-water, cool, bind on, *Kü.* ii, i, 9.

Int. : *Stomach*, with PA (tops) of licorice, *etc.*, drink, *AM.* 39, 1, 6.

(2) *Haṣhallatu* (sour juice), *AM.* 72, 2, r. 2.

^{šam} ^{is}ŠE-MUR, *KAR.* 203, r. 1, i-iii, 16. A ^{šam}ŠI-MUR occurs (the PA used), *Stomachic*, poultice, *Kü.* i, i, 24. Cf. ^{šam}ŠI-MUR or ^{šam}ŠI-mur-tu, *AM.* 61, 4, 6.

I can suggest only that as ŠE-MUR = *tumru* "ashes", a possible line of research would be towards such a plant as the Dead Sea Fruit, *Calotropis procera*, RBr., which is said to grow also in Persia, Arabia, and tropical Africa (*MPB.* 1065). The description is given in Murray's *Handbook, Syria, Palestine*, ed. 1903, 37, which, if it does not apply to the ^{is}ŠE-MUR, may be of use to future investigators : "On the Plain of Engedi the traveller will be able to illustrate for himself a remarkable passage of Josephus relative to the fruit called *Apples of Sodom* : ' . . . There are still to be seen ashes reproduced in fruits, which resemble eatable fruits in colour, but on being plucked by the hands, are dissolved into smoke and ashes' (*Wars*, iv, 8, 4). Here, beside the rivulet, a tree still grows with a singular fruit. Its Arabic name is '*Osher*, and botanists call it *Calotropis procera*. The stem is 6 inches or 8 inches in diameter, and the height of the tree is from 10 feet to 15 feet. It has a greyish cork-like bark, and long oval leaves, which when broken off discharge a milky fluid. The fruit resembles a large smooth apple, hanging in clusters of two or three, and having a fresh, blooming appearance ; when ripe it is of a rich yellow colour. But on being pressed or struck it explodes like a puff-ball. It is chiefly filled with air. In the centre a slender pod runs through it from the stem, and is connected by delicate filaments with the rind. The pod contains a small quantity of fine silk with seeds. The Arabs collect the silk and twist it into matches for their guns, preferring it to the common match, because it burns freely without sulphur. Thomson (*LB.* 617) says that at 'Ain es-Sultān, near the Dead Sea : 'On the margin of this delightful brook grow great numbers of bushes, bearing a yellow apple, about the size and having very much the appearance of a small apricot, beautiful to the eye, but nauseous to the taste and said to be poisonous.'"

XV

VINES

(GRAPE, BRAMBLE, AUBERGINE)

VINES

(GRAPE, BRAMBLE, AUBERGINE)

- A. 1. ¹⁸GEŠTIN, *karanu*.
 2. ¹⁸GEŠTIN. GIR (-RA), *murdinu*, *amurdinnu*.
 3. ¹⁸GEŠTIN.KA (V. PIL), *pi(l)lu*.
 4. ¹⁸GEŠTIN.LUL.A, *karan šelabe* (v. *šelibī*) (see under Poisonous Plants, p. 142).
 5. ¹⁸GEŠTIN.SU.UŠ. (V. ŠÚ) RA (V. RU), *šušrú*.
 Meissner, *MVAG*. 1913, 2, 14, ll. 14 ff.: *Mat.* 1, i-ii, 11 ff. (= a) and 63, 1 ff. (= b): Ras Shamra (Thureau-Dangin, *Syria*, 1931, pl. xlv):

¹⁸ GEŠTIN	<i>ka-ra-nu</i>
15. ¹⁸ GEŠTIN-GIR (-RA)	<i>mur-di-nu</i> (v. <i>a-mur-din-nu</i>)
¹⁸ GEŠTIN-KA (V. PIL)	<i>pi-lu-ú</i> (v. <i>pil-lum</i>)
¹⁸ GEŠTIN-LUL-A	<i>ka-ra-an še-la-be</i> (v. <i>še-li-bi</i>)
¹⁸ GEŠTIN-ŠU (V. ŠÚ)-UŠ-RA (V. RU)	<i>ŠU (-u)</i> , i.e. <i>šušrú</i> (v. <i>šu-uš-ru-ú</i>)
1	
¹⁸ GEŠTIN-IGI-GUD (V. DUK !)	<i>i(e)-ni alpi</i> (v. <i>al-pi</i>)
20. ¹⁸ GEŠTIN-ŠUR-RA	<i>ša-aḫ-tu</i> (v. <i>ta</i>)
¹⁸ GEŠTIN-ḪA-PAR-A ²	<i>mu-zi-qu</i>
1	
¹⁸ GEŠTIN-GAM-ME (V. MA)	<i>ka-ra-la-nu</i> (v. <i>(kūl)(gūl)-li-nu</i>) ³
¹⁸ GEŠTIN-GAM-ME (V. MA)	<i>ta-ra-la (?) -nu</i> (v. <i>ki-li-la-nu</i>)
¹⁸ GEŠTIN-GAM-ME	<i>kīp-pat</i> (¹⁸) <i>karani</i> (v. <i>ka-ra-ni</i>)
25. ¹⁸ GEŠTIN-GAM-ME (V. MA)	<i>dil-lat</i> (v. <i>la-at</i>) (¹⁸) <i>karani</i> (v. ,,)
¹⁸ KIN-GEŠTIN	<i>iš-ḫu-na-tu</i> (v. <i>iš-ḫu-un-na-tum</i>)
¹⁸ GA (V. KA) — GEŠTIN	ditto (v. ,,)
¹⁸ GA (V. KA)-RA-AN-GEŠTIN	ditto (v. ,,)
⁴ ¹⁸ DIL-LA-GEŠTIN	<i>dil-la-tu</i> (v. <i>tum</i>)
30. ⁵ ¹⁸ PA-PA-AL-GEŠTIN	„
¹⁸ PA-PA-AL-GEŠTIN	<i>pa-pa-a[l]-lum</i>
¹⁸ PA-PA-AL-DU ₁₃ -GEŠTIN	<i>s[il (?)] -lu</i> ⁶
¹⁸ AMA-GEŠTIN	<i>um-mu</i> . . . ⁷

(Ras Shamra gives the list, without Akkadian equivalents) in this order: ¹⁸GEŠTIN, ¹⁸GEŠTIN-GIR-RI-A, ¹⁸GEŠTIN-KA, ¹⁸GEŠTIN-LUL-A, ¹⁸GEŠTIN-GA-RA-AN, ¹⁸GEŠTIN-GAM-MA, ¹⁸GEŠTIN-ŠUR-RA, ¹⁸GEŠTIN-IGI-GUD, ¹⁸ELLAT-GEŠTIN, ¹⁸GAM-MA — GEŠTIN, ¹⁸GA-RA-AN-GEŠTIN. Thureau-Dangin draws attention, p. 227, to certain differences from Meissner's publication.)

¹ *Mat.* (a) and II R. 45, 4, omit.

² *Mat.* (a) ¹⁸GEŠTIN-?-A, II R. 45, 4, omits this line and l. 24.

³ ii R. 45, e-f, 63-4, gives *ka-ra-an li-e* and „ (= *ka-ra-un*) *la-a-ni* as values for ¹⁸GEŠTIN-GAM-MA and omits horizontal line after *dilat* ¹⁸karani.

⁴ *Mat.* (a) has an additional line . . . -GEŠTIN = „.

⁵ *Mat.* (b) has a horizontal line here.

⁶ *Mat.* (b) *si (?) -lum ú* . . .

⁷ Meissner *u[m]-mi*. For the continuation of this text see p. 302, after ¹⁸MA.

(a) ¹⁸GEŠTIN, *karannu*, the grape-vine, wine : cf. Schrader, quoted Meissner, *MVAG.* 1913, 2, 32, on *κάρινον* :

It occurs in *MT.* :

(1) GEŠTIN (without det.) : As medium for drugs : varying with *kurunnu*-beer, *AM.* 39, 9, 4 : varying with beer, *AM.* 48, 4, r. 11 : 58, 4, 14 : 59, 1, 34 : 60, 1, 8 : 89, 1, 9 : no alternative, *AM.* 66, 7, 13 : 72, 2, 4 : 76, 1, 10 : 88, 3, 7 : 97, 6, 4.

(2) GEŠTIN^{pl} : As medium for drugs : varying with *kurunnu*-beer, *AM.* 87, 1, 12.

(3) ¹⁸GEŠTIN : As medium in which to steep drugs, *AM.* 96, 1, 13 (cf. 56, 1, 6).

(4) ¹⁸GEŠTIN^{pl}, †, *AM.* 43, 1, 25.

(5) GEŠTIN-KALAG-GA "strong wine" : *AM.* 66, 1, 5 : as medium, 66, 7, 7, 9 : with alternative (unknown), *AM.* 59, 1, 42.

(6) GEŠTIN-DÜG-GA "sweet wine", apparently as medium (without alternative), *AM.* 2, 7, 7 : as drink, simply, *AM.* 21, 4, 5 : 49, 6, 8 : 80, 1, 16.

(7) GEŠTIN-BIL-LÁ (without a at beginning), *AM.* 37, 10, 9 : 84, 4, iii, 5.

(8) (¹⁸)GEŠTIN-ŠUR(-RA) (= *šahtu*) "squeezed grapes" (Meissner, *MVAG.* 1913, 2, 33)¹ : drink, †, *AM.* 40, 4, 9, *dup.* 54, 3, 12 ff. : 60, 1, 20. Used as medium, *AM.* 43, 6, 8 : 48, 2, 5 : 59, 1, 26 : 63, 1, 13 : 69, 3, 12 : 82, 2, r. 11. Let stand with beer (*etc.* (?)), *AM.* 50, 5, 3 : with BI . . . , *AM.* 55, 6, 6. As enema (or sim.) *AM.* 57, 1, 1 : in rose-water, *AM.* 58, 2, 6. As simple ¹⁸*šahtu*, Waschow, *MVAG.* x, 1, 35, l. 23.

(9) A-GEŠTIN-NA, *tabātu* "vinegar" (*PRSM.* 1924, 21). In smegma (?), †, *AM.* 67, 6, 5. Mix in beer, † (?), *AM.* 89, 3, ii, 13. As medium, *AM.* 65, 5, 8 : 77, 5, 7 : 96, 6, 12 : with beer, 79, 5, 3 : $\frac{1}{3}$ qa, 41, 1, iv, 21. $\frac{1}{2}$ qa for urinary trouble, †, introduce by penis, *AM.* 66, 7, 19. Together with GEŠTIN, †, *AM.* 90, 1, 6. Cf. "10 *siqlu sahlê ša pi* (KA) *abanurši ša siliqqa* (?) *la iddi A-GEŠTINNA la šulputu*", *KAR.* 202, i, 16, sim. to *CT.* xxiii, 23, 11, and cf. *AM.* 50, 3, 4 (*RA.* 1933, 10). *Karpat* —, (a vessel of vinegar), *AM.* 9, 1, 44 (cf. *V R.* 42, a, 12).

(10) A-GEŠTIN-NA-KALAG-GA "strong vinegar" : A-GEŠTI-NA *danna-ti*, *AM.* 84, 1, ii, 5. Cf. A-GEŠTIN-NA *šam-ra-te u šamnu dap-ra-nu*, *Pl.* 30, S. 698, 16, *dup. KAR.* 203, r. iv, 9.

(11) AL-UŠ-SA A-GEŠTIN-NA² : mouth-wash (?), †, *AM.* 28, 7, 7. *Stomachic*, drink alone, *AM.* 39, 1, 10.

(12) A-GEŠTIN-NA-BIL(BÍL)-LÁ : *AM.* 5, 3, ii, 13 : 37, 10, 9 : varying with [GEŠTIN]-ŠUR-RA as medium, *AM.* 92, 4, r. 6.

Note also the following words :

¹⁸GEŠTIN(-NA) — PAR-A, *mu(n)ziqu*, *D.* 211, 19, dried grapes, raisins as Ebeling (*Neub. Briefe*, 310) suggests, for Meissner's "Mischwein" (*MVAG.* 1913, 2, 33). Mentioned along with dried figs (*titta pišā*) among

¹ The root *šahtu* "to press" is well known : it occurs in *MT.*, *AM.* 14, 5, 7, . . . *argu-su RAT mēpl.šu šur-at* "while it is yet green thou shalt bray, squeeze its water", and *AM.* 25, 6, ii, 13, . . . [*ar*]qu-su tu-ḥa-sa mēpl.šu šur-at, the same. It is applied to eye-troubles : if a man's eyes *su-uh-ḥu-ta* (bulge ?), *AM.* 13, 3, 4, cf. *ēnā¹⁴-šu uš-ša-ḥa-ta*, *V R.* 31, c. 69). Note *ka-ra-an ša-ah-ti* as the translation for ¹⁸GEŠTIN-ŠUR-RA, *KAR.* 42, r. 12-13). ^{amēl}GEŠTIN-ŠUR-RA = *šaht karani* (*MA.* 873) is the grape-presser.

² On this as perhaps "mother of vinegar", see *Bab.* 1934, 124, and *RA.* 1929, 49.

offerings made by Nebuchadnezzar (Pognon, *Wady Brissa*, vii, 24 : Langdon, *NBK.* 169, vii, 24). I found red dried grapes from the mountains at Mosul eaten for cough.

Kūlānu must be connected with the late Heb. *kēlālā* "crown", like *šamkīlī*, associated with the convolvulus, Scammony (*p.* 13), and consequently the tendril of the vine. Equally *dillatu*¹ will be the Syr. *dālīhā*, *brachia*, *palmītes* (*FJ.* i, 68; Meissner rightly "Weinranke", *MVAG.* 1913, 2, 33, as also *kippatu*, from the root *kn̄p*, which must have the same meaning).

Iš (v. *iš*) *hū(n)natu* is applied apparently to other trees than the vine (*GE.* ix, v, 49, if this be not the vine). On *ummi* . . . as "die Mutterpflanz", see Meissner, *MVAG.* 1913, 2, 33. (For a word for a grape-cluster, cf. *iškillatu* = Heb. 'eškōl, *DACG.* 105.)

The word for "wine" can be *GEŠTIN*, *ᵀGEŠTIN*, *GESTIN*^{pl}, or *ᵀGESTIN*^{pl}, in *ADD.* (tablets of the later Sargonid period). But "vine" may also be *ᵀGEŠTIN*, since it grows in a *ᵀŠAR* "orchard" (*ADD.* 773, r. 2). In late Bab. times special wines came from *māt Izallam*, *māt Tu'immu*, *māt Šimmini*, *māt Hilbunim*, *māt Aranabanim*, *māt Sūham*, *māt Bit* (?) *-kubatim*, and *māt Bitātīm* (*Nbk.*, *Grotefend Cyl.*, 1 R. 65, 22). *māt Izallam* may be the *māt Nizalli* of *ADD.* 1000, 1, and 1001, 1, and *māt Hilbunim* is, of course, Helbon. *ᵀKa-ra-nu* is definitely the grape-vine (often defined by the addition of *gapnu*,² while *ka-ra-nu* is "grapes" (*Nbn.* 606).

On the question of *inu* as meaning "wine", I am in doubt (see Jensen, *ZA.* i, 186, and literature in *MA.*). It depended first on the equivalence *MU-TIN* = *i-nu* (ii, R. 25, a, 38). From *Br.* 1322-1324 *MU-TIN* certainly has the value *karanu* "wine"; but it also has the value *bēltu* "lady" (*SAI.* 773), and it might be that *inu* is merely a variation of *enu* "lord". Nor can I think the passage quoted by Zehnpfund as convincing (*BA.* 1890, 524). Hehn has translated (*BA.* 1906, 310, 28) the passage *sudduru gugganē qutrīni niqnaqqi ᵀi-ni ᵀsa-am-me-e u ᵀ[s]* . . . , but he does not offer a translation or commentary for *ᵀinu*. Equally, I am in doubt about the passage adduced from a letter by Scheil (*RA.* 1917, 185), mentioning also *karanu*, and Tilmun-dates :

2-ta ŠAB (= PA + IB) ŠI-MEŠ NUNUZ
ša sadī(i)

Here he transliterates ŠI-MEŠ NUNUZ as *inē^{pl}pir'u*, and translates "deux šappa de vins, cru, de la montagne".

I think, therefore, that it is uncertain whether we are to see the origin of our word "wine" in Assyria, although perhaps the equivalence *MU-TIN* = *inu* may be academically an indication. I do not believe that *inu* was

¹ Cf. *Mat.* 88, 4, 22 . . . [a]r ka-ra-ni | šoma-ar dīl-la-tīm (?).

² There is a difference between *gapnu* and *gupnu*, although they might excusably be confused, since the sign often used for the first syllable may read both *gap* and *gup*. This was pointed out by Thureau-Dangin (*HC.* 43), *gapnu* being the Heb. *gēphēn* for "vine", and *gupnu* meaning the trunk of a tree. In Harper, *BA.* 1894, 429, 27, *gu-up-nu* is spelt out, in relation to a grove of *ᵀhašur* : in *Camb.* No. 192, 23, *ᵀga-ap-nu* is mentioned, *ina šap-la-nu ᵀga-ap-nu u ᵀgišimmuru ina ᵀŠAR.* Anp. binds the decapitated heads of warriors *ina ᵀgup-ni šā šadē(e)* (*AKA.* 308, 43), *ina ᵀgup-ni šā tarbaš ekalli-šū* (*ib.* 320, 71), and *ina ᵀgup-ni ina li-me-it dīl-šū-nu* (*ib.* 295, 118). *ᵀGu-up-ni dan-nu-ti ša ᵀe'-ri* occurs in the description of mountains by Sennacherib (iii R. iv, No. 4). Curiously, in Syriac it is *guphnē* (plur.) which is the vine.

in any general use as wine. The probability is that Delitzsch (*Wörterbuch* 350) is correct in referring it to a similar word (*inu*) *ša šikari* (following „*ša mē^u*, *Lesestücke* ³, p. 85).

Inbu, long known as “fruit” (*M.A.* 68, and a full list of examples, *HWB.* 97). In *Nbn.* 869, 1 [*in*]-*bi-i-ti* describes vines of grapes, “vines” of figs, “vines” of pomegranates, and vines not bearing: in *Nbn.* 606, *in-bi-i-ti* similarly describes various grape vines and “vines” (*isgup-pu*!) of pomegranates. At the same time *in-bi-e* must surely have a more definite and special meaning than merely “fruit” in the contract, *Cyr.* 97 mentioning . . . *mana*, 5½ shekels of gold delivered to goldsmiths to make into 35 *in-bi-e*. What, too, is “20 (or) 30 *gur* of *en-bi* for the *bît alpê* (house of oxen)” (*Ebeling, Neub. Briefe*, No. C. 113) ?

2. ⁴⁹GEŠTIN- GIR(-RA), (*a*)*murdi(n)nu*, *Rubus*, bramble, rose.

In addition to the references in *D.* 210, 9, cf. the following in a broken vocabulary from Nineveh :

.....	..... -tú
.....	[<i>šam</i> mur-din]-nu ina Šú-ba-ri
.....	[<i>šam</i> mur-di]n-nu ina Šú-ba-ri
	[<i>šam</i> a (?) -mur-din-nu
	<i>šam</i> a (?) -mur di -nu
.....	..... -ra-nu
.....	..... ra-nu
.....	..... -u (?)

See also *Mat.* 88, 5, 31-2.

Jensen, *KB.* vi, 516, took this to be the Arabic *warad* “rose”, probably rightly, the Sumerian group “vine + thorn” bearing this out (cf. *AF.* 55). Meissner (*Beitr.* ii, 6) mentions the form *ismu-ur-ti-in-nu* (“seven hours of *ism.*”), Weidner, *Boghaz Stud.*, vi, 1922, 64, 30), and compares the forms *amurriqānu*, *murriqānu* (*MVAG.* 1913, 2, 32). It would appear to have its origin in the Assyrian *šamamaridu* = *ašagu*, thorn.

That it means the wild rose may perhaps be apparent in a line from Reisner’s *Hymnen*, No. 60, 16 :

[*ina*]lib-bi-šú iṭ-ti-it-tu šá-di-i mur-din-na ib-ta-na

“[There]in the mountain-thorn produced the rose.”

Another quotation, however, certainly suggests that the scribe had the teazle in mind, where Bêlit answers :

a (?) -ta-al-la gi-šu a-šab-bir-ma a-mur-din-nu a-na ni-ip-ši a-nap-pa-aš

“I will arise (?), I will break the *gišu*-thorn,¹ I will card the bramble to wool.”

(Craig, *Rel. Texts*, i, r. 1 : Martin, *Textes Rel.*, 1903, 101). *FJ.*² i, 587, however, says that the *Dipsacus fullonum* Mill. or teazle for carding wool

¹ For *giššu* “thorn”, cf. *amatu an[ni]tu kī gišši ina libbikumu lū nadātā* “let this word be fixed in your minds like a *gišši*” (Von Soden, *ZA.* 1936, 18, 68). Cf. also Abp., Rassam Cyl. viii, 84, “between great trees, *gi-šš-ši* (and) ⁴⁹GEŠTIN-GIR^u (brambles), a way of *“iṭ-ti-e-ti* (thorns)”.

is unknown in Arabic lands. It is, of course, possible that some other similar plant, perhaps a thorn, was used to card wool, but it must be noted that the peculiar virtue of the teazle is the little hook at the end of the spine. I am indebted to Mrs. Crowfoot for the following valuable remarks on the teazle. A teazle, she tells me, does grow wild in Syria-Lebanon and, like our own wild teazle, is near the cultivated Fuller's teazle, *Dipsacus fullonum*, the "tame teazle" of Gerarde, but it does not grow in Palestine, and Mrs. Crowfoot never heard of its use. The teazle, she says, is used to tease cloth, the heads being fixed on the rim of a wheel, or on a cylinder, which is made to revolve against the surface of the cloth to be "fleeced", thus raising the nap, the great value of the teazle being that it will raise the nap without tearing the cloth, as a comb might do, because the spines are hooked.

The PA (leaves) of ¹⁸GEŠTIN (?) GIR are a drug for TAB-UD-DA (bray, anoint in oil alone), KAR. 203, 52. It occurs also in KAR. 208, 7.

Murdinu is also the name of a disease connected with the head or eyes (CT. xxiii, 23, 2, *ênâ-šu birratu ipitu išitu murdinna guqana ašd u dîmtu nuddâ*). This must be the *wardinj* (*warad* with the termination -nj), "fongus hématoïde de l'œil," a kind of ophthalmia, Dozy, ii, 796.

3. ¹⁸GEŠTIN-KA (v. PIL), *pi(l)lû*, perhaps *Solanum Melongena* L., aubergine, egg-plant.

Pillû is also the word for "Mandrake" (p. 217), it being the equivalent of the Arab. *luffāh* by a common metathesis (perhaps the word *pillû* (recognized as meaning "egg") is to be seen in the Syr. *pāhelāthā* "testicles"). The Syr. description of the mandrake (the *kahinā*-plant must, I think, be this) in SM. ii, 708: "on the top thereof two little balls which are like the testicles of a man". Yet the Arab. *luffāh* has a second meaning, that of a species of aubergine or egg-plant (*Solanum Melongena* L., resembling the *bādinjān* = *šamām*, Lane, *Dict. s.v.*), and this may give us the explanation.

¹⁸GEŠTIN-KA, so far as I know, is found only in vocabularies. The meaning of GEŠTIN here may be paralleled by its meaning of the grape, i.e. an egg-shaped fruit, and if we accept the possibility of *pillû*, like *luffāh*, having two meanings, "mandrake" and "egg-plant", the comparison with the grape will be apt. The "egg-plant" is found in the warmer parts of Africa, Asia, and America; it is an annual; rises to the height of about 2 feet; bears light violet flowers, which are followed by large fleshy berries, having the size and shape and, in the white varieties, very much the colour and resemblance of eggs (VK. 380); the fruits are white, yellowish, or purple (see FJ. iii, 367: EB. xith ed. s.v. "Aubergine"). It is said to come from the East Indies (MPB. i, 979) and Arabia (PC. xxii, 196). Whether the KA in the second half of the word represents the same colour¹ as in the mineral *aban*KA "iron oxide" is, of course, a matter for conjecture.

5. *Šušru* may perhaps be the Syr. *šahšūrā*, the mandrake (FJ.² iii, 367), since *pillû* (¹⁸GEŠTIN-KA) may be both mandrake and egg-plant.

¹ If so, should we refer the meaning of KA(ZŪ)-LUM "date" to this KA "brown" (LUM = *unnubu* "bear fruit"), or *šam*KA-A-AB-BA "sea-weed (?)", similarly as the "brown" of the sea?

XVI

GUMS, GUM-RESINS

MYRRH, LIQUID AMBER (OR STYRAX), STORAX, GALBANUM,
OLIBANUM (?), *ASA FÆTIDA*, ABSINTHE, SAGAPENUM, BALM
OF MECCA, EUPHORBIA

RESINS, OLEO-RESINS, GUMS, AND GUM-RESINS

Before discussing the different drugs in this section,¹ I should like to quote A. Lucas's excellent definitions (*Notes on Myrrh and Stacte, JEA.* 1937, 27), with a few additions from *EC.* :

"When first exuded, these materials are all liquid ; but with a few exceptions, such as balsams and the oleo-resins from certain trees . . . they soon harden and eventually become solid."

"Resins are solid bodies, insoluble in water, but usually wholly or largely soluble in alcohol, examples being . . . , colophony (rosin), . . . ladanum, mastic, and coniferous resins that have hardened naturally on the tree." ("Nearly all dissolve, either wholly or partially, in alcohol, ether, the essences, fat oils, and sulphuret of carbon," *EC.* 856.)

"Oleo-resins and balsams are usually thick syrupy liquids, . . . examples being Chios turpentine . . . , Mecca balsam (Balm of Gilead), and storax." ("Balsams are insoluble in water," *EC.* *ib.*).

"Gums are solid bodies ('concrete in transparent or translucent drops', *E.C.* 702), insoluble in alcohol, but either soluble in water or capable of taking up sufficient water to form a mucilage, the best example being gum arabic (gum acacia).

"Gum-resins are solid bodies, consisting . . . essentially of a mixture of gum and resin, with which is associated a small proportion of volatile oil, examples being myrrh and frankincense." ("The emulsion which they form with water is owing to the solution of the gum, and the subsequent suspension of the other components in the mucilage," *EC.* 703.)

It is useful to consider the main substances of this nature as used in ancient times :

"The formula for the 'regal ointment' made for the Parthian Kings included myrobalanus, costus, amomum, cinnamon, comacum, cardamom, spikenard, marum, myrrh, cassia, storax, ladanum, opobalsamum, Syrian calamus and Syrian sweet-rush, cœnanthe, malabathrum, serichatum, cypress, aspralathus, panax, saffron, cypirus, sweet marjoram, lotus, honey, and wine" (Schoff, *Periplus*, 112).

"The Mendesian ointment included resin and myrrh, oil of balanus, metopion (Egyptian oil of bitter almonds), omphacium, cardamom, sweet-rush, honey, wine, myrrh, seed of balsamum, galbanum, and resin of terebinth" (*ib.*).

"Another included oils (the common kinds), sampsuchon, lilies, fenugreek, myrrh, cassia, nard, sweet-rush, and cinnamon" (*ib.*).

With this information about the various excretions we can examine such trees and plants as are defined by the prefix *ri^a* (i.e. *riqu*, *riqqu*), which has been translated to mean "aromatic", "pleasant scent", and similar terms.

Riqu is distinct from *šammu*: "25 *šammê^{ti-a}* *šim^{ti-a}* *annûti^{ti}*, these 25 *šammê* and *riqqê*" (*AM.* 84, 1, 4): *riqqê^{ti-a}* is a word which covers all the group (*šim^{ti-a}* KAL-A-BI *šú-nu*, "*riqqê*, all of them," *CT.* xxiii 46,7); but it may also have a special use in early times (42 *qa šim^{ti-a}*, C. F.-Jean, *RA.* 1927, 66, 16, reign of Rim-Sin). Actually the definition is given, *Mat.* 88, 4, 19-21² :

¹ [See now E. Ebeling, *Mittelassyrische Rezepte zur Bereitung von wohlriechenden Salben*, in *Orientalia*, 1948, pp. 129, 299.]

² See D. No. 215.

[šam] ŠIM	[šamu]r-qí-e-tú
[šam] ŠIM	šam riqLI
[šam] ŠIM	šam . . -[a]r (?) -du

and Meissner, *MVAG.* 1913, 2, 18, 47 :

is ŠIM | riq-qu

The meaning of *urqitu*, from *Luck.* 46, 9, *pagri quradi-šunu kima urqiti umallâ šêri* "with the bodies of their warriors like grass I filled the desert", is clear, and has nothing to do with "gums" or "resins"; the special use in the vocabulary from *Mat.* above (*burašu*) is the pine-gum, doubtless translating the text of Rim-Sin's date: šam . . -[a]r-du might be *lardu*, nard-grass, but doubtful. It is not impossible that the Assyrian philologist has associated the two roots of *riqu* and *urqitu* (from the application of the two meanings to ŠIM), and has, somewhat irresponsibly perhaps, ascribed *urqitu* thus also to ŠIM.

Sargon (*Khors.* 142 ff.) is also indicative: (*isurkarinu iserinu isurman kala riqqi biblat mât Hamâni ša erišun tâbu* "all *riqqê*, the product of the Amanus, whereof the scent is pleasant": cf. also Esarhaddon (*PE.* 27, 30, 31) *isarmahlu tamšil mât Hamanim ša kala riqqêti-a u inbi hurrušu* "a great park like the Amanus, which luxuriates in all *riqqê* and fruit".

Instructive are the indications in the Babylonian explanatory text, *BRP.* pl. 37, *JRAS.* 1924, 455, 13 ff.: A-DAN riqHAL hîlu ana amasutum innippuš: A-DAN LI-TUR: kima epiri ašurrê: riqRIM: tûri: inšarû: hibišti riqGAM-GAM ša kappê libbû riqBULUG riqMEŠ-LA riqLÛ-LÛ: riqMUK riqŠAL hibišti ša ina šipti UD-E-U ŠIMti-a: urû(šamrû): labanatum: "Gum of riqHAL (galbanum) which is made for medicine: gum (-resin) of LI-TUR (scammony), (which is) like the dust of walls: riqRIM: tûri (Aleppo pine): sap: resin of riqGAM-GAM (fir-turpentine), wherein there are cones (or, could it be, "of the cones, in the midst," i.e. from the middle of fir-cones?): balukku (*Ferula communis*), šimeššalû (p. 303): kukru (fir-turpentine) (the three latter explaining the three preceding), resin which comes forth for incantations. ŠIMti-a = urû(šamrû) incense."

But riqas a determinative is also found in certain mineral chemicals, e.g. ŠIM.BI.ZI.DA, kolil, ŠIM.BI.GUŠKIN, realgar, ŠIM.DIR, ferric oxide (see *DACG.* 258) (there are many others), so that the word *riqqu* cannot be confined to vegetable gums, or vegetable products. Moreover, amŠIM (probably a form of ambappiru, which is the sign ŠIM + GAR) means "a brewer".

Hitherto the suggestion that *riqqu* = the Heb. *rôqêaḥ* has found no little favour,¹ and yet it is not satisfactory, since the sign ŠIM (*D.* 215, 3) has the value *ri-i-q[u]* or *ri-qu*, which does not suggest the root *râqaḥ*.

If we look at the sign ŠIM (Thureau-Dangin, *REC.* No. 393) it may be, as Deimel (No. 215) says, "ein Gefäss mit Fuss," but I am inclined to think that the "foot", which is rather obscure, is another vase in which the upper, larger, vase (with a pointed end) is placed. This suggests the ordinary arrangement of a porous water-jar (although more usually set in a wooden stand) which allows its muddy fluid to trickle filtered into the pot beneath. Our Assyrian word *riqu* is at once referable to the

¹ E.g. Jensen, *ZA.* 1891, 350. "*Rikku* . . steht doch wohl für **rikku* und kommt, worauf ich zuerst aufmerksam machte, von einer ריקקו."

Arabic *rawwāq* "to clarify", and its derivatives *rāwūq* "filter" and *raiḡ* "the best part of a thing", so that if we pursue this meaning in the determinative *šim^(riḡ)*, we should get an indication of a fluid filtering from another substance, which will admirably suit the gum-resins which it makes. This again coincides with the equivalence *šim^{hi-a}* = *urū* (*šamrū*), the latter word (if *urū*)¹ probably coming from the root *arū* "to throw, shoot, evacuate (the body)". *Riḡqu* (*rīqu*), then, represents the substances which have oozed or filtered forth from trees.

So much for *riḡ* as determinative to the obvious gum-resins. Equally, we might see *riḡ* as a reasonable determinative with "myrtle", which has a volatile oil obtained from every part of the plant, while *dapranu* "juniper" may well provide sandarach, a resin from incisions. In the case of the arsenic groups, where the determinative *riḡ*(*šim*) plays so large a part (*DACG.* 45 ff.), we can note that both orpiment and realgar are described as "resinous" in some measure (*EC.* 819, 856). How far we are to explain the eye-paints and rouge as similarly connected with clay or arsenic, or alternatively as drugs to be "smeared" on the face is uncertain, but the association seems similar.

The word, therefore, which would appear to cover *riḡqu* (*rīqu*), the evacuations or filterings of trees, is, I suggest, "essence", with all its comprehensive English implications, and I think that the Heb. root *rāqah*, although tempting with its ideas of "perfume", "ointment", is philologically unsatisfactory.

The plants and trees characterized by the det. *riḡ*, and their different uses in medicine are as follow :

riḡāsu, myrtle (simple, powder, oil : int., ext., fumigation, enema).

riḡarganu, balm of Mecca (simple, powder : int., ext., fumigation (probably), enema).

riḡbaluḥḥu, galbanum (simple, *ḥīlu*-gum, oil : int., ext., fumigation, enema).

riḡbalukku, probably storax (simple, oil : ext., fumigation).

riḡbariratu, sagapenum (simple, powder : int., ext., fumigation, enema).

riḡburašu, pine (simple, powder, oil, water, seed : int., ext., fumigation, enema).

riḡdapranu, juniper (probably sandarach) (simple, *zid-zid*-powder, oil, seed : ext., fumigation, enema).

riḡdarruqu, probably peach-gum, not in *MT*.

riḡerinu, cedar (simple, *ḥīlu*-gum (once), powder, oil : int., ext., fumigation, enema).

riḡimdu, cypress of the cemeteries (simple, oil : int., ext.).

riḡturi, *ṭiru*, fir-gum (simple : int., ext., fumigation, enema).

riḡkanaktu, probably opopanax (simple, powder, oil, seed, fat : int., ext., fumigation, enema).

riḡkirkiran buraši (*ŠE-LI-PAR*), probably gum from pine-cones, *Pinus halepensis* (simple : int., ext., fumigation).

riḡkukru, fir (simple, powder, water, oil, seed : int., ext., fumigation, enema).

riḡmargušu, see p. 364.

¹ If *šamrū* is correct, the root is probably cognate to the Syr. *šammar* "made to flow", the same as *šimru* "fennel".

riamurru, myrrh (simple, powder, oil (= stakte): int., ext., fumigation, enema).

rianiqibtu "male and female", *Euphorbia Antiquorum* L. (simple, oil of *hîlu*-gum once: int., ext., enema).

riasihu, wormwood (simple, powder: int., ext., fumigation, enema).

riasappandu, *riāš-ĦA-RA*, not in *MT*.

riasuadu, unknown (simple, powder, oil, seed: int. (?), ext., enema: *riāIM-MAN-DU*, int., ext., fumigation).

rišumlalû, unknown (simple, powder: ext., enema).

rišimmeššalu, unknown (simple: int., ext., enema).

rišurmenu, cypress (simple, powder, oil: int., ext., enema).

riurû, perhaps broom (simple: ext.).

It will be noted that the *hîlu*-gum occurs only with one of the above (*riābalahhu*) to any serious extent (*riāerimu* and *riāniqibtu* have one instance each). On the other hand the following (not marked with *riā*) all have a *hîlu*-gum (A-DAN "strong water",¹ which, as I think will be obvious, is a gum soluble in water):

šāmaḥabukatu, scammony (simple: int., ext., fumigation, enema).

šāmāš, *Asa foetida* (simple, seed (root doubtful): int., ext., enema (?)).

šāmḥîl ū-GIR (*ašagi*), gum Arabic (simple: see p. 180, and cf. *isḫiškānû*, p. 289).

šāmḥîl baltī šadī, *Ecballium elaterium* L. (simple: rare, see p. 81).

šāmḥînu, tamarisk (simple, water, seed, root: int., ext., fumigation).

šāmnuḥurtu, *Asa foetida* (simple, powder, water, seed, root: int., ext., enema).

šāmšarbatu, willow (the *hîlu*-gum is called especially *šāmPAR* "the white", "clear"): (simple, seed: int., ext., fumigation, suppository, but not enema).

šāmīyātu, *Asa foetida* (simple: int., pessary, enema).

(To these gums may be added *šāmīarḥu*, tragacanth, p. 272).

Note also *ḥîl* (A-DAN) *erī* "gum of copper", used with *šāmPAR* (the nitre from willows), brayed and blown into the eye, *AM.* 9, 1, 39. This must be very near the *Lapis Divinus*: "Copper Sulphate, Potassium Nitrate, and Alum, of each equal parts, in powder, fused in a glazed earthen crucible," camphor then being added, the whole being used as an eye-wash in distilled water (*P.* 468).

Of the above list of plants marked by *šām* scammony provides a gum-resin which, when powdered and triturated with water, affords an emulsion: *Asa foetida*, when triturated with water, does the same: the fruit of *Ecballium Elaterium* provides a sediment which, according to Pliny (*NH.* xx, 2), is collected in rain-water, in which it falls to the bottom, after which it is thickened in the sun; but the active principle (according to *P.* 481) is insoluble in water. Tamarisk-bark provides a decoction in water which can be used against gout and dropsy (*LPG.* 441), so that presumably we might consider this a gum soluble in water. Gum Arabic is, of course, soluble in water, and the willow-nitre (*ḥîl isšarbatī*) will have the same property.

While, therefore, we can translate A-DAN as "gum", we can base

¹ Also with the value *zību* (*D.* 579, 280), hardly "Schakal" as Deimel tentatively suggests, but probably connected with a cognate to the Heb. *zābh* "flow".

little presumption on its being necessarily soluble in water, although in every case given above, there is some reason to see such a connection. At the same time it is not unreasonable to draw some conclusion from the absence, on the other hand, of a use of *hīlu* with practically all but one of the plants determined by *riq*, and this would suggest that where *hīlu* is used we should suspect at least a gum-resin which will give an emulsion in water.

In conclusion of this brief summary, it might be added that of the (gum-resins) marked by *riq* we have still to identify one fairly common, *riq**suadu*, and three rarer, *riq**sumlalû*, *riq**sappandu*, and *riq**šimeššalu*. The other identifications are certain, or at least reasonable.

The commonest gum-resins not yet attributed to Assyrian words are Ammoniac (*Dorema Ammoniacum* Don, from Persia, allied to Opopanax), and one or other of the two, Opopanax or Olibanum (dependent on the meaning of *riq**kanaktu*), and the resin, Labdanum (from Crete, not probable in Assyria). There would appear to be no plant identifiable with mastich (the *Pistacia lentiscus*) unless we should see it in one of the LAM-group of trees (see p. 248).

*riq**šiš*, *murru*, *Balsamodendron myrrha* Nees, myrrh.

This has long been identified, *šiš* here meaning "the bitter (gum)". Myrrh, as at present known, is the *Balsamodendron myrrha* Nees from Arabia, and it is used in India as an emmenagogue, expectorant, detergent, and astringent; *int.* for fever, flatulence, constipation, hysteria, chronic bronchitis, leucorrhœa, and epilepsy, while *ext.* it is used for eyes, and as dentifrice and gargle for spongy gums, and as a fumigatory for sores. It is said to prevent hair falling off (*BMM.* 209). (Described in Schoff, *Periplus*, 112).

It occurs thus in *MT.*¹:

(1) *Simply*: *ext.*: *Head*, †, poultice, *AM.* 2, 1, 22. *Temples*, †, bind on, *AM.* 20, 1, 14, *dup. CT.* xxiii, 40, 27. *Eyes*, †, blow in, *AM.* 9, 1, 38. *Nose* (?) (or sim.), †, apply, *AM.* 26, 2, 6. *Ears*, †, insert, *AM.* 33, 1, 20, 26 : 36, 1, 14 : 37, 2, r. 14. *Mouth-wash*, with alum, *AM.* 21, 4, 5 (probably) : 26, 6, 9. *Anus-trouble*, †, ointment, *AM.* 42, 2, 1 : uncertain use, †, *AM.* 58, 2, 11. *Blains*, †, bind on, *AM.* 32, 5, 8 : prob. bind on, †, *AM.* 51, 4, 7 : *chilblains*, †, bind on, *AM.* 32, 5, 12. *Wash*, †, 94, 2, ii, 10. *Hand of Ghost*, †, ointment, *AM.* 94, 2, ii, 17.

Int.: *Strangury*, †, [drink], *AM.* 59, 1, 39, 45 : alone, drink in beer, anoint in oil, introduce into the penis by a tube, *KAR.* 203, i, 22. Simple *hīniqtī* (retention), †, [drink], *AM.* 60, 1, 7, 9 : †, drink, *ib.* 19 : mentioned as one of seven for *hīniqtī*, *AM.* 89, 4, 9, of six, *ib.* 12, of nine, *ib.* 5. *Urinary*, alone in A. SUD-beer and LÚ-TIN-NA-beer drink, *KAR.* 155, ii, 6.

Enema: †, *AM.* 56, 1, r. 6 : †, *AM.* 94, 2, 9 : †, *KAR.* 157, r. 4. (2 shekels).

Fumigate: *Ears*, †, *AM.* 33, 1, 31, *dup.* 35, 1, 7, and 38, 2, r. 9. *Quantities* (besides those given above): 1 *šú*, *AM.* 41, 1, iv, 24 (one of 3 *masqāti*): $\frac{1}{2}$ *pitqi*, †, in enema, *ib.* 16 : 1 shekel, *AM.* 31, 1, 2.

(2) *Seed*: *šamzir* *riq**šiš* = *šamzir* GEŠTIN-[GIR-BA], *Pl.* 30, 79-7-8, 19, 14. *Zir* *šmur-ri* mentioned *KAR.* 185, iii, 16.

(3) *ZID* (powder): *Blains* (*šiggāti*), †, bind on, *KAR.* 192, iii, 55.

¹ It is possibly a gloss or a variant to [*riq*]ni-qib-tú, *KAR.* 182, r. 26.

(4) *Oil* (undoubtedly *stakte*, described by Lucas, *JEA*. 1937, 29 : "Theophrastus, who was a botanist, states that 'from the myrrh when it is bruised flows an oil : it is, in fact, called *stakte* (in drops) because it comes in drops slowly'. He then explains that 'some indeed say that this is only the simple uncompounded perfume and that all the others are compound . . . but others declare that the manufacture of *stakte* (myrrh-oil) is as follows : having bruised the myrrh and dissolved it in oil of *balanos* over a gentle fire, they pour hot water on it : and the myrrh and oil sink to the bottom like a deposit : and, as soon as this has occurred, they strain off the water and squeeze the sediment in a press". (*Concerning Odours*, trans. Sir A. Hort, 29) . . . "Dioscorides . . . states that 'stacte is the name given to the fat of fresh myrrh, crushed with a little water and pressed out' (i, 73)" (Lucas discusses this at length admirably). The oil of myrrh was one of the gifts of Tushratta (*TA*. 25, iv, 51), coming from Mitanni, N. of Syria ; from him also came ^{riq}BUR = *bašmu*, the Arab. *bašām* (*ib.* 22, iii, 33).

In *MT.* the oil is used thus :

Temples, † (?), *AM.* 33, 1, 6. To keep away mouth (or tooth)-trouble, as a medium for other drugs, *AM.* 78, 1, 32. Cf. *šam* ^{riq}šiš *šá šamni* DU-DU ("myrrh which runs oil" ?),¹ as a drug for *šá-šá-ti* [drink] in *kurunnu-beer*, *KAR.* 203, vi, 22. Cf. *AM.* 87, 19, and 12.

(5) GA ^{riq}šiš "milk (of (?)) myrrh", described as one of 18 *šamnê*^{ri} ("oils"), *KAR.* 187, r. 3.

(6) Note ^{riq}šiš *ša šadi* "myrrh of the mountains", for *anus-trouble*, alone with fat of the left kidney of a male sheep (?), put on anus, *KAR.* 203, ix, 12 (note Pliny's "wild myrrh" (*NH.* xii, 35)). Whether *šam*^{mur-ra} *šadi(i)* brayed and drunk alone in beer for some form of jaundice, *Kü.* iii, iii, 9, is to be included here is doubtful. (Cf. also *AM.* 1, 2, 5 . . . *ud-ma tu-ug-ta ma-li šam*^{mu-ur-tu} MU.NI . . . "and full of *tuqtu*, its name is *šam*^{murru}"). In the description of the mythological being (*Tod.* 47, 12) *šam*^{murru} *lipi-šu* "myrrh is [his] fat".

Myrrh was used as incense in Assyria, a censer of it being placed at the head of a patient's bed and a censer of *burašu* at the foot (Ebeling *MVAG.* 1918, 8, 12 ff. : cf. *KAR.* 72, r. 3, NÍG.NA ^{riq}šiš ^{riq}LI).

(^{is}) (^{riq})BAL, (^{is}) ^{riq}MUK, *ba(l)lu(k)ku*, *Liquidambar orientalis* Mill. (or *Styrax officinalis* L.), *Storax* (esp. *Calamite storax*) :

^{is} ^{riq} MUK	<i>bal-lu-(uk)-ku</i>
^{is} ^{riq} BAL	ditto

(Meissner, *MVAG.* 1913, 2, 17, 26-7).

Von Soden (*ZA.* 1936, 239, 146-8) gives the values :

<i>bal-lu-uk-ku</i>	<i>šil-lu-u</i>
<i>hi-iš-šá-ku</i>	"
<i>me-di-du</i>	"

It occurs in *MT.* thus :

(1) *Simply*: *ext.*: *Temples*, †, poultice, *CT.* xxiii, 39, 7 (^{riq}MUK). *Eyes*, † (?), uncertain use, *AM.* 13, 3, 10 (^{riq}BAL) : †, bind on, 12, 6, 1 (*šam*^{BAL}). *Feet*, †, steaming hot, [apply], *AM.* 69, 2, 10 (^{riq}BAL). *Breast* and

¹ LÁ-DU-DU = "fish oil" (*D.* 231, 14, b), but the other is possible here.

loins, †, poultice, *AM.* 49, 1, 8 (^{ria}BAL). *Lungs*, † (?), mix in oil, anoint, *AM.* 45, 1, 12, 13 (^{is}BAL). For the muscle of the "middle" (pelvis), †, uncertain application, *AM.* 69, 8, 17 (^{ria}BAL). *Cough*, †, rub, *AM.* 50, 1, 8 (^{ria}BAL): uncertain use, †, *AM.* 80, 1, 19 (^{ria}BAL). *Bruise* (*dikši*), †, bandage, *AM.* 96, 1, 3 (^{ria}MUK).

Fumigate: By nostrils, with gum of ^{ria}HAL (galbanum), *AM.* 64, 1, 20 (^{ria}BAL). Against *Ghost*, with fir- and pine-turpentine and roses (probably fumigate), *AM.* 99, 3, 16 (^{ria}BAL). *Ears*, †, *AM.* 33, 1, 31 (^{ria}MUK), *dup.* 38, 2, iv, 10 (*cf.* 34, 5, 6, ^{ria}BAL).

Enema: *AM.* 94, 2, 4 (^{ria}MUK), †, *KAR.* 157, 4, and *r.* 13 (both ^{ria}BAL): †, *AM.* 56, 1, *r.* 6 (. . . BAL): †, 13 (^{ria}BAL) (*cf.* †, *obv.* 4, ^{ria}MUK): †, *Kù.* 1, ii, 15 (^{ria}MUK), *ib.* 18, † (^{ria}BAL). Probably enema, †, *AM.* 41, 1, iv, 2 (^{ria}BAL) (*cf.* 13).

Quantities: enema, 2 shekels, †, *AM.* 41, 1, iv, 13 (^{ria}BAL): 10 shekels (stomachic), †, *AM.* 79, 5, 6 (^{ria}BAL).

(2) *Oil*: Oil of ^{ria}BAL, ears, †, *AM.* 37, 2, 9. *Head*, apply alone, *AM.* 105, 9 (^{ria}BAL).

It is used in incense: 8 *mana* *riqqê* ^{bi-a} (= *urû*, *šamrû*) 1 *mana* ^{ria}ballukku (^{ria}bal-lu-uk-ku) 18 *qa* ^{ria}buraši *ana* *kinunu* *ša* ^aŠamaš ^aAá, ^aGula *iláni* ^{vi} *Sippar* ^{ki} (to So-and-so, the smith) followed by 2 (?) *mana* *riqqê* ^{bi-a} (*urû*, *šamrû*) *ana* *matê* *ša* *kisru* (to So-and-so) (*Camb.* No. 126). Also used in a ritual for incense, contrasted with *burašu* in a second censer (*Tod.* 50, 20–21). It may be found, perhaps, as far back as the 3rd Dyn. of Ur ([^{ria} (?)]MUK, Scheil, *RA.* 1921, 54, 27).

A striking expression occurring in *BBR.* 75–8, 7 (*qanê ballukki* "reeds of *ballukki*") suggests at once the *Calamite storax* of the ancients. This is an invocation to Shamash and Adad in: *mê* ^{vi} *Hamanni ellûti* ^{vi} *hibištu mât* *Hašur šad* ^{is}erini *bišit* ^{is}erini ^{is}šurmêni ^{is}šiqitti ^{is}supali *qanê ballukki ištu šubat* . . . *šadê* (*e*) *ellûti* ^{vi} "pure water of Amanus, gum of the Hasur mountains, the mount of cedar, the product of the cedar, cypress, almond, manna, *qanê ballukki*, from the dwelling of the pure mountains". Pliny himself says that the best *Storax*, which comes from Mt. Amanus, is highly esteemed for medical purposes (*NH.* xii, 55). With these clues we can follow up the evidence for this identification of *ballukku* with *Storax*.

Storax issues in a fluid state from incisions made in the bark of the *Styrax officinalis*, a native of the Levant, growing about 20 feet high: "as it was formerly the custom to collect and export this gum resin [*Styrax officinalis*] in reeds, it obtained the name of *calamite styrax*" (*VK.* 559). I might add that when I was supplied with various gums as specimens, *Styrax* was the only one put up in a small bottle, the others being solid gums in envelopes, and it is obvious that in the offerings to Shamash and Adad quoted above, the *styrax* is presented in its *calamite* receptacles. The modern description of *Styrax Calamita* (in this case from *Liquidambar orientalis*) is given in *P.* 1170: it "usually consists of sawdust impregnated with liquid *Storax* or, more rarely, of powdered *Storax* bark 3 parts beaten with *Storax* 2 parts to cause it to form a mass". Its modern use (*ib.*) is similar to that of the *Balsams of Peru* and *Tolu* (*i.e.* *ib.* 214 and 217), stimulant and disinfectant expectorant: useful in chronic bronchitis: ext. for chronic indolent ulcers, sore nipples, scabies, pediculi, and parasitic skin diseases, and to relieve itching in urticaria.

It will be seen that there are two closely-allied plants considered as storax: note *MPB.* ii, 952, of *Styrax officinalis* "Lieferte früher Storax, der jetzt allein von Liquidambar orientalis gewonnen wird".

The obvious Semitic comparison for ^{ria}ballukku is the Syr. *ballikā* (*PS.* 535), given as *Ferula communis* L., growing in waste fields and dry hills in Palestine (*FP.*² i; 547). But *FJ.* iii, 456, gives the Syr. *balika* as galbanum, and its Arabic equivalent as *qinna*. *Ib.* 458 gives *qinbīl* as the Arabic for *F. communis*, which might represent GI(N) ^{ria}BAL (= *qanē ballukki*).

It will be noted that *balukku* is used externally or in fumigation, and that it has an oil. The ext. use corresponds with the modern habit, but Pliny (*NH.* xxiv, 15) prescribes it (in this case the Amygdalite storax according to Fée, Bostock *ib.*) internally and as a pessary, as well as externally.

Besides its medicinal use it was employed by the Assyrians as incense, contrasted once with pine-gum. Although frankincense and olibanum are the most likely gums for incense, Pliny says "from Syria they bring back storax, which, burnt upon the hearth, by its powerful smell dispels that loathing of their own perfumes with which these people are affected" (*NH.* xii, 40). Evidently this must have been the bark: *P.* 1170 says that occasionally the bark of *Liquidambar orientalis* Mill. is used in the preparation of "fumigating pastilles and incense".

^{ria}HAL, *balu(h)hu*, and its gum, *Ferula Galbaniflua* Boiss., galbanum.

This drug has a marked peculiarity in connection with other drugs indicated by the determinative ^{ria}; both in the syllabaries (Meissner, *MVAG.* 1913, 2, 17, 28-9) and in the *MT.*, the simple ^{ria}HAL and the more elaborate *hīl* ^{ria}HAL "gum of ^{ria}HAL"¹ are given, together in the same text, in contrast to the others, which are never duplicated exactly in this way. Obviously the two are sharply distinguished.

The Sum. HAL, with its Semitic value *garāru* "run", "roll", and *nuhuru* "slit" (cf. *nuhurtu*, *Asa foetida*), shows that this plant must either give a gum exuding naturally or is slit for the purpose of obtaining it. The obvious equivalent would be the Heb. *ḥelb'nāh*, *χαλβάνη*, the equivalent of galbanum, the inversion of *h* and *b* in the Assyrian word being to a certain extent paralleled by the Heb. *rāḥēl*, the Assy. *lahru*. Galbanum is either *Ferula Galbaniflua* Boiss. et Buhse, growing in Demavend and certain high parts of Persia (*FH.*² 321) or *F. rubricaulis* Boiss., in Persia (*ib.*). In modern medicine there are two kinds, Levant and Persian, although both are the produce of Persia (*P.* 549). The specimen which I possess is yellowish-brown, of rather a disagreeable smell, burning easily with a small amount of blackish smoke, without any very pronounced smell.

The following are the uses in *MT.*:

(1) *Simply* (i.e. simple ^{ria}baluhhu (HAL)): *ext.*: *Tooth*, . . . ^{ria}HAL,² †, apply, *AM.* 28, 1, 7. *Temples*, †, bind on, *CT.* xxiii, 39, 5, 8. *Stomach* (with *hīl* ^{ria}HAL, †), anoint, *AM.* 42, 2, 1. *Sickness coming out on body*, †, poultice (*AM.* 52, 3, 3 (*ba-luh-ha*)). *To ease affected muscles* (sinews) of

¹ *KAR.* 157, r. 4, shows that myrrh and *hīl baluhhi* are soluble in water.

² Perhaps [*hīl*] ^{ria}HAL "gum of" *baluhhu*.

hands and feet, †, poultice, *AM.* 98, 3, 13. For *blains* (*šiggati*), †, bind on, *AM.* 32, 5, 4, 12, 14 (all with *hîl^{ria}_{HAL}*): poultice, *AM.* 51, 4, 7 + 32, 5, 1. For [*Hand of Ghost*], †, bathe, *AM.* 94, 2, ii, 10.

Int.: *Sorcery*, †, drink, *AM.* 85, 1, ii, 3 (*ba-lu-ḥa*). Excessive saliva, †, prob. drink, *AM.* 31, 4, 19.

Enema: †, *AM.* 91, 2, 7: †, including *hîl^{ria}_b*, *AM.* 94, 2, 4: †, *KAR.* 157, r. 16, 22.

Quantities: 10 carats, †, prob. *ext.*, *AM.* 98, 2, 13 (along with 10 carats of *hîl^{ria}_{HAL}*): $\frac{1}{3}$ *qa*, †, *ext.*, *AM.* 50, 3, r. 3: 5 shekels, †, poultice, *AM.* 17, 8, 5.

(2) *Hîl^{ria}baluḥḥi* (*HAL*) "gum of b.": *ext.*: *Toothache*, apply, *AM.* 28, 1, 4: right tooth, after procedure with one other drug, put in left ear, *AM.* 105, 1, 16: left tooth, after procedure, put in ears alone, *ib.* 20. For decayed (*unnušate*) teeth alone, *Pl.* 23, K. 259, 15, *dup.* *KAR.* 203, i, 14 (probably without medium). As a drug for a *ašî* (pain), wrap in wool alone, apply to throat, *KAR.* 203, i, 66 (*cf.* *Pl.* 29, K. 4566, 22): after procedure, introduce alone into nostrils, *KAR.* 202, 43.

Int.: *Strangury*, alone in beer, drink, *AM.* 59, 1, 33: †, drink, *ib.* 41: †, pour into penis, *ib.* 11: with refined oil (*īā BĀR-GA*) alone, blow up urinary passage, *ib.* 22.

Enema: *KAR.* 157, r. 4: *suppository*, *AM.* 40, 5, 10: 53, 9, 11: *KAR.* 157, r. 35.

Fumigate: *Nostrils*, †, *AM.* 64, 1, 21 (*dup.* 55, 8, 1): *cf.* *ib.* 20. *Prolapsus ani* (*miḡit irri*), †, over a fire of thorns, *AM.* 62, 1, 5.

Quantities: *šû*, *AM.* 41, 1, iv, 24: 3 grains, *AM.* 15, 3, r. 8 (*ba-lu-ḥi*): 10 carats, *AM.* 49, 6, r. 2: 2 (or perhaps 3) shekels, *AM.* 66, 7, 19: 2 shekels, *KAR.* 157, r. 4: 5 shekels, *AM.* 5, 2, 3.

(3) *Oil of^{ria}_{HAL}*: *Ears*, with . . . and frog's gall apply, *AM.* 36, 1, 4.

Now the modern use of Galbanum is similar to that of *Asa foetida* internally, but less energetic, while externally it is used as a plaster in chronic inflammatory swellings (*P.* 548: *FH*² 324); *Asa foetida* is a nervous stimulant, expectorant, laxative, and carminative, useful for flatulence, hysteria, and bronchitis, and in enemata (*P.* 196), much of which is obvious in *MT*. Pliny, *NH.* xxiv, 13, says the galbanum (from Syria) is used for toothache, suppurations of the ears, tumours, boils, and ulcerations of the head: as a pessary, or in fumigations to bring away the foetus; to drive away serpents in fumigation. He says, curiously enough, that it is thought to be productive of strangury, but *IB.* 184 prescribes it for obstructions of the reins and stone (as well as for hæmorrhoids). Oribase ii, x, 36, prescribes galbanum for toothache, like Pliny.

What is important to note is that the gum of *ria_{HAL}* would appear to be soluble in water: "When a man is sick of retention of the passage (presumably constipation), 2 shekels of myrrh, 2 shekels of *hîl^{ria}_{HAL}*, water of *šam_{HAR-HAR}* (mustard), water of *šam_{NU-LUḤ-ḤA}* (*Asa foetida*), water of salt, the water of their (*i.e.* these) *riqqê*, of their water thou shalt take half a *qa* each, beat up (*GAZ*) boil, strain, cool; mix 6 *qa* (*MAŠ*) of oil with them, 7 *še* (grains) of opium (*šam_{NAM-TI-LA}*) bray, put therein the waters up to three times thou shalt divide, and once, twice, thrice thou shalt pour into his anus: his constipation (*esilti libbi-šu*) shall be

healed" (*KAR.* 157, r. 4 ff.). This coincides with galbanum, which yields about 50 per cent of substances soluble in alcohol (90 per cent), and if a portion is heated to redness in a dry test-tube the residue, when cooled and boiled with water, yields a solution (etc., *P.* 549). *VK.* 565 says that galbanum is almost entirely diffusible in water.

P. 549 offers an explanation for the use of the *riabaluḫḫu* and its gum side by side together: the Levant galbanum occurs (1) as small yellowish-brown tears, probably obtained from the stem: and (2) as a tough pasty mass, evidently obtained from the root. This would allow us (as on *p.* 342) to see *HAL* as *garāru* "trickle" in the former (*i.e.* from the stem), and *HAL* as *nuḫuru* "slit" (*i.e.* of the root) in the latter. There is, of course, the possibility that we are to make the distinction, as in *Asa foetida*, of leaves as distinct from gum (*IMP.* i, 629).

We must presumably distinguish between this and bdellium, since we find a word *budulḫu* on *Pl.* 33, S. 796, 11 (noted by Meissner, *Bab.-Ass.* i, 243), preceded by *riaBAL* (storax) and followed by what must be read *ladunu* (ladanum, *cf.* Meissner, *ib.*). Neither *budulḫu* nor *ladunu* occur in *MT.* Some of the forms given by Diosc. (i, 80) and Pliny (*NH.* xii, 19) for bdellium (*i.e.* *brochon*, *malacha*, *maldakon*, *madelkon*, *bolchon*) bear a resemblance to *baluḫḫu*, and yet I doubt if *baluḫḫu* can be the same as *budulḫu*. It may be added that bdellium has some similarity in medical use as galbanum, it being prescribed for opening the womb, stone, urine, cough, and the bite of mad beasts (*Diosc. ib.*).

To sum up: philologically *baluḫḫu* is cognate to the Heb. *ḥelbēnāh*, and the medicinal use of the Assyrian drug coincides well with that of galbanum.¹ Moreover, the indications that *baluḫḫu* is soluble in water, and that it has a *ḫīlu*-gum, has a clear bearing on the identification.

(*is*) *riaGIG*, *kanaktu*, perhaps *Boswellia* sp., *Olibanum*.

(A). *Pl.* 34, K. 4169:

..... -ti	<i>riqqê^{vi} 1 riqqu</i>
.....	<i>RIQ : 1 riqqu 1 riqqu</i> ...
[šam ^e — su] — ú ²	šam ^{ia} — ar — ḫu
[šam ^{ak-la}] — bu-u ²	šam ^{ia} — ar — ḫu
5. [šam]A-AB-BA	šamtam — tu
[šam]šu-uq-lu	šammu šá lib-bi šerê ^{vi}
šam <i>ria</i> RIM	šammu šá lib <i>ria</i> ŠE-LI-PAR
šamš ^u — uq — lu ²	šammu ša lib <i>ria</i> GIG
šamli — pu — u	zir <i>ria</i> G[IG]
10. zir <i>ria</i> GIG	šammu zir <i>ria</i> G[IG]
<i>ria</i> ŠAL — ŠAL	ka — nak — [tu]
<i>is</i> ku — lu	ka — n[ak — tu]
<i>ria</i> BÍL	ka — [nak — tu]
šamPI — PI	k[a — nak — tu]
15. šama — da — ma — tú	.....
.....

¹ I cannot help thinking that *šamḫal-pa-nu-um* applied to eyes in *KUB.* iv, 50, 6, must be a mistake for *šamḫal-dap-pa-nu-um*, mustard.

² Restored from text on *p.* 247, ll. 13, 14.

(B) Cf. VAT. 9000 in the $\text{šam}^{\text{H}}\text{U-UD-HU-UM}$ group :

$\text{šam}^{\text{H}}\text{U-UD-HU-UM}$	$\text{šam}^{\text{H}}\text{u-ut-hu-um}$
šam^{H} „ GIŠ-ŠAR	$\text{šam}^{\text{H}}\text{išē}^{\text{pl}} \text{iškirî}$
$\text{šam}^{\text{H}}\text{u-uq-lu}$	$\text{šam}^{\text{H}}\text{lîpî šá lib-bi}^{\text{riq}}\text{kanakti}$
$\text{šam}^{\text{H}}\text{lî-mu (!)-u}$	$\text{šam}^{\text{H}}\text{zîr}^{\text{riq}}\text{kanakti}$
5. $\text{šam}^{\text{H}}(?)\text{mu-zi-qu}$	$\text{šam}^{\text{H}}\text{karanê pišûti}^{\text{pl}}$

(C) K. 8846, r. 17 (Pl. 31), together with K. 5974 (Meek, RA. 1920, 150), and 82-5-22, 576, r. 1, 15-17 (Pl. 40) continue the text thus after l. 11 :

.....	„ ar-na-a-ti
[$\text{šam}^{\text{H}}\text{H}^{\text{H}}\text{U-UD-HU-UM}$	$\text{šam}^{\text{H}}\text{hu-ut-hu-mu}$
[$\text{šam}^{\text{H}}\text{H}^{\text{H}}\text{U-UD-HU-UM}$	$\text{šam}^{\text{H}}\text{išē}^{\text{pl}} \text{ana iše}^{\text{pl}} \text{šá iškirî}$
[$\text{šam}^{\text{H}}\text{hu-ut-hu-mi}$] $^1\text{GIŠ-ŠAR}$	$\text{šam}^{\text{H}}\text{išē}^{\text{pl}} \text{ana iše}^{\text{pl}} \text{šá iškirî}$
[... s]u (?) -ut (?) $^2\text{-ti GIŠ-ŠAR}$	$\text{šam}^{\text{H}}\text{PA}^{\text{H}} \text{išA-AM}$
[... t]ab-ru-ú	ma-na-ha-a-tum
[... ši (?) -hi (?) -ir-tum	šip-pa-tum $^{\text{H}}\text{iškirî}$
..... -H]A-ŠAR	ši-hi-ir-tum
..... -H]A-ŠAR	tab-ru-u
..... -ŠAR	tab-ru-u
..... ŠAR	tab-ru-u
..... -ú	GIŠ ŠÁ TUK
.....	$\text{šam}^{\text{H}}\text{lib-bi gišim[mari]}$
.....

$^{\text{riq}}\text{GIG}$ (i.e. *kanaktu*) is given the values $^{\text{ist}}\text{a-ni-it-tim}$ and $^{\text{ist}}\text{ti-ik-ni-tim}$, CT. xviii, 3, viii-vii, 26, 27 ; and $^{\text{ist}}\text{ti-ka-ni-tum}$, Von Soden, ZA. 1936, 240, 164.

$\text{šam}^{\text{H}}\text{PI-PI}$ is a drug for šá-šá-ti (an ulcer of some kind) KAR. 203, r. iv, 23, parallel to $\text{šam}^{\text{H}} \text{riq}^{\text{H}}\text{murru šá lā-DU-DU}$,³ mix in beer, bind on (šA[R]) (ib. 22).

$^{\text{riq}}\text{GIG}$ occurs thus in MT. :

(1) *Simply*: ext.: Eyes, †, AM. 16, 1, 23. Breast and loins, †, poultice, AM. 49, 1, 8. Lungs, †, bind on, AM. 49, 6, r. 2 (13 carats). Blains (*šiggatî*), †, AM. 51, 4, 7.

Suppository: †, AM. 43, 1, 3 : KAR. 157, r. 32. *Enema*: †, AM. 56, 1, 11 : †, AM. 41, 1, iv, 15 (2 shekels).

Int.: Urinary, alone (?) with oil, beaten up and drunk for three days without a meal, AM. 66, 7, 17 (Bab. 1934, 111).

(2) *Water*: Ears, sprinkle a cloth with “water” of pomegranate, insert, KAR. 202, iv, 28.

¹ From a tablet from our excavations at Nineveh (S.W. IV, Dump, 4), preceding the $\text{šam}^{\text{H}}\text{SUMUN-DAR}$ group.

² Is this *ar*, i.e. *ar-ti*? It might be so, from the copy.

³ lā-DU-DU = “fish oil”, D. 231, 14, b., but it might mean here “of which the oil runs”, or similar.

(3) *Oil*: *Ears*, sprinkle on wool (after prescription), [apply], *AM.* 35, 4, 6. Mentioned *ABL.* 570, 13. Also in a ritual against hatred, *etc.*, †, anoint, *AM.* 87, 1, 8, and 13.

(4) *Lipû* (fat): *ext.*: *Eyes*, †, apply, *AM.* 8, 1, 17: 13, 3, 7: 19, 6, 5. *Temples*, †, *KAR.* 202, iii, 13. *Head*, †, *CT.* xxiii, 26, 4.

(5) *zid* (powder): *ext.*: *Bruise* (*QI mišitti*), †, 1 (?) *qa*, *AM.* 77, 5, 18, *Blains* (*šigati*), †, bind on, *KAR.* 192, iii, 55.

^{riq}GIG occurs as far back as the time of Shulgi (*TURK.* 13, No. 122).

^{riq}PI-PI occurs as far back as the Dyn. of Agade, among various drugs marked with the det. ^{riq}, along with ^{riq}GIG-GAL and ^{riq}GIG-DU₁₃ (Legrain, *MMAP.* xiv, No. 89, p. 122-2).

It is not easy to decide whether ^{riq}kanaktu is a gum-yielding plant or a gum-yielding tree; the list in Meissner *MVAG.* 1913, 2, 17-15, which defines the drugs by the double determinative ^{is} ^{riq}, includes under this denomination both trees and plants (myrtle, pine, myrrh). In *MT.* the ^{riq} class has frequently no other determinative than this, whether trees or plants (*vide* ^{riq}ti pine, ^{riq}GAM-GAM fir, ^{riq}šiš myrrh): in the case of *kanaktu* which, like the remainder, is usually prescribed simply as ^{riq}GIG in *MT.*, an instance occurs (*Kü.* ii, 3, 68) of ^{is}GIG; we also find in (A) its synonyms (^{is}ku-lu, ^{is}tanittim, ^{is}tiknūtīm) similarly indicated, while ^{šam}GIG does not, I think, appear. The probability is therefore that we have a tree in ^{riq}GIG, *kanaktu*, and not an umbellifer, which would then rule out the identification in *AH.* 145 of *opopanax*.¹

If then the suggestion is entertained that ^{šam}huthumu is "chestnut", should we not infer from its association with *kanaktu* that the latter is also a nut-bearing tree? It is obvious from the frequency of its use and the number of its synonyms that it is a very important drug; it is peculiar in having a *lipû* "fat": its meaning would appear to be "the healer" since ^{riq}GIG means "drug for sickness", and the Assyrian word *kanaktu* is comparable to the Syr. *kannek* "healed". We have as yet no satisfactory equivalent for the very common "frankincense" of the ancients which is generally accepted to be one of the species of the *Boswellia*, probably *B. serrata* Stackh., which provides the *Olibanum* of commerce.

Olibanum (frankincense) was certainly an Arabian gum(-resin), Theophrastus saying that frankincense was produced in the country of the Sabaeans (*FHP.*² 136): "as a medicine *olibanum* is nearly obsolete." *CPI.* 174 considers that all that has been written about the medicinal properties of *Boswellia serrata* refer to the imported *olibanum*, from which *olibanum* must be carefully distinguished.

In India the *B. papyrifera*, a form of *olibanum* is applied to indolent swellings, is a local astringent, detergent, fumigatory, and detersive, and is used int. and ext. for lungs, and as an astringent is used in gonorrhœa. Native women take it to promote menstruation (*BMM.* 210). In commerce there are two kinds of *olibanum*, the E. Indian and the Arabian, but the latter is said to be now seldom met with; there are two varieties of the former, one occurring in pieces the size of a hazel-nut to that of a walnut (*PC.* v, 1836, 242). *Olibanum* "occurs in commerce in

¹ Note, however, *FHP.*² 327, "the gum-resin of the nearly allied *Opopanax persicum* Boiss., as collected by Loftus at Kirrind, in Western Persia, in 1851, has neither the appearance nor the characteristic odour of official *opopanax*."

semi-opaque, round, ovate, or oblong tears or irregular lumps, which are covered externally with a white dust" (perhaps the Assyrian *zid*) (*EC*. 11th ed., xi, 22) "as a medicine it was in former times in high repute . . . Avicenna . . . recommends it for tumours, ulcers of the head and ears, affections of the breast, vomiting, dysentery, and fevers. In the East frankincense has been found efficacious as an external application in carbuncles, blind boils, and gangrenous sores, and as an internal agent is given in gonorrhœa" (*ib.* 23).

^{šam}*Huthumu*, curiously included in a group with ^{riq}*kanaktu* and even "raisins", has the value "sticks (wood) for trees of the orchard" (amplified by ^{šam}*HU-UD-HU-UM GIŠ-ŠAR* with the same value). This, coupled with its association with almonds and other nuts (in the text continuing *p.* 404) is, as far as I know, the only evidence we have for its meaning which, I suggest, might perhaps be "chestnut". "In a young state . . . the [sweet] chestnut is found to make durable hoops for casks and props for vines, and of a larger size it makes good hop poles" (*EB*. 11th ed., vi, 113). But this can be only a suggestion, as ^{šam}*huthumu* is not marked as a tree.

On *p.* 344 *šuglu* would appear to be from the original meaning of *šaḡālu*, apparently "to hand" and so "weigh" and, if so, it would be the pendent gum (*i.e.* *l.* 8, "drug from the middle of ^{riq}*kanaktu*," *l.* 7, "drug from the middle of the ^{riq}*še-LI-PAR*," *i.e.* Aleppo pine, *l.* 6, "drug from the middle of flesh," *i.e.* adeps, followed in *l.* 9 with ^{šam}*lipū* "fat", as a special synonym of "seed of ^{riq}*kanaktu*". At the same time the Arab. *šakala* is "to ripen" (of grapes), which finds a parallel in ^{šam}(?)*muziqu* "raisins" (B 5). As for [^{šam}]*A-AB-BA* particularly "drug of the sea", presumably it is some gum brought from the sea-land of S. Mesopotamia.

(18) ^{riq}*GAM-MA*,¹ *šumlalū*, *Nerium odorum* L. (?).

This is a *riqqu* which can be powdered, and its use appears to be entirely ext., or in enemata.

Sargon (*HC*. 9, 28) mentions seeing it in the mountains of Sinaḡulzi and Biruatti, probably E. of Lake Urumiah, along with the *karšu*, *Prunus Mahaleb*. "A sweet fragrance," as he says.

The *Nerium odorum* has fragrant leaves (*IMP*. ii, 802), but this is hardly enough, since as in Nebuchadnezzar's time 15 *mana* of ^{riq}*šu-la-li-e* are worth 5 shekels of silver (Scheil, *RA*. 1921, 97, from Keiser, *Letters*, No. 162) mentioned along with ^{riq}*burašu* and ^{riq}*kukru*, it should be a gum.

^{riq}*GAM-MA* occurs thus in *MT*. :

(1) *Simply*: Mouth, †, bray in fat, poultice, *AM*. 24, 5, 7, 12. *Temples*, 10 shekels, †, bind on, *CT*. xxiii, 45, 8: †, baldness, or scab on head, *CT*. xxiii, 26, 4. (*Breast and loins*), †, poultice, *AM*. 49, 1, iv, 8. *Cough*, rub with cedar oil, †, bind on, *AM*. 50, 3, 8. *Constriction of lungs*, †, [*ext.*], *AM*. 53, 4, 14 + 63, 6, 10. "When a man in his weakness," inflammation (dryness) spreads to his *imši* (belly), bray with ^{šam}*lišan kalbi*, boil in beer, and bind on, *KAR*. 202, iv, 7. For "poison" (of

¹ is ^{riq}*GAM* — ME in Meissner, *MVAG*. 1913, 2, 18, 35.

limbs), †, bind on, *AM.* 98, 3, 9. Uncertain disease, †, poultice, *AM.* 72, 2, 6. For bruise (*šibir mišitti*), †, as a *labki* [*ext.*], *AM.* 82, 2, 13. *Hand of Ghost*, †, anoint, *AM.* 94, 2, ii, 16.

Enema: †, *AM.* 94, 2, ii, 5: †, *KAR.* 157, 4, and 25 (10 shekels) and *r.* 14. Probably, †, *AM.* 41, 1, iv, 2, although described as one of 3 *mašqāti*.

Quantities (in addition to above): 10 shekels, *AM.* 42, 2, 9.

(2) *ZID* (flour, powder): *Ext.*: †, *KAR.* 192, iii, 55.

Having regard to a mention by Ainsworth (*T.* ii, 315) that he saw jasmine, honeysuckle, and *cercis* (Judas-tree) near Nounieh, we might almost be led to see in *šumlalû* a borrowed word from Sumerian, of which the latter half would be from *LĀL* "honey". But honeysuckle has little or no medicinal value (nor have jasmine nor *cercis*), so that these would seem to be out of the question. *Nerium odorum* L., a poison used externally as a drug might be a possible identification, and yet it hardly complies with the need in the Nebuchadnezzar contract quoted above. Its pleasant scent and its habitat, however, coincide with Sargon's quotation.

(*is*)(*ria*)*ŠIM-ŠAL*, *šimšalû*, *šimeššalû*, perhaps *Buxus longifolia* Boiss., box.

The equivalence occurs (Meissner, *MVAG.* 1913, 2, 17, 17) with the forms *riaŠIM-ŠAL*, *riaŠIM-MEŠ-LI* (v. *LA*), *šimeššalû*, *šimšalû*.

It is rare in *MT.*, and occurs simply only:

Ext.: *Head*, †, *CT.* xxiii, 37, 2. *Temples*, †, bind, *ib.* 45, 7 (10 shekels), *dup.* *KAR.* 190, 3. A prescription (?), †, includes 1 shekel, *ADD.* 1074, 5. Cf. Thureau-Dangin, *RA.* 1920, 70, 4, in a ritual for the *lilissu*-instrument.

Int.: *Stomach* (*BIL libbi*), as *tahittum*, †, 1 shekel, in 1 *qa* of strong beer, *AM.* 40, 1, 62.

Enema: †, *KAR.* 157, *r.* 14.

The more usual word for the "box" is accepted to be *isurkarinnu*, the Syr. *'eškārā*. Holma, *Kl.B.* 85, took the Syr. *šemsārā* to be the equivalent of *šimeššalû*, i.e. *Buxus longifolia* Boiss. This is the box-tree of Palestine (mountain regions of Antioch and Amanus, *FP.*² ii, 509), growing about 20 feet high (*FJ.* i, 318). It is closely allied to *B. semper-virens* L. (*Guide to Exhib. of animals, etc., in the Bible*, 318) which is the Indian species, the wood being diaphoretic, the leaves bitter, purgative and diaphoretic, useful in rheumatism and syphilis. A tincture from the bark is used as a febrifuge (*IMP.* 1134). *PC.* vii, 75, says that great quantities of boxwood are imported from Turkey, and that the leaves have been employed as a tonic. How far the medicinal use corresponds with that in *MT.* is difficult to say.

In Weidner's *Boghaz K. Stud.* vi, 64, 28-9, we find a mention of the mountain of Galašu which provided lapis and gold, bearing *isḥašhuru* (apple), *istittu* (fig), *isši-mi-iš-ša-lu isur-zi-in-nu*, which may well correspond to what *FJ.*² i, 318, says of the box: "auf den Bergen des pontischen Kleinasien wucherte der Baum in unermesslicher Fülle."

Note *riaGIR* (?)¹ (myrtle) *riašim-meš-la*, *riaLÛ-LÛ* (fir-turpentine), *riaMUK* (styrax), *šim-šal ši-bi-ši šā ina šipti UD-e-u riqqē^{ti}-a* (*BRP.* iv, 37, 14: *JRAS.* 1924, 455).

¹ "*riaBULUG*" is unknown.

(i^š)(šam) *riq*MAN-DU, *suadu*, probably *Sambucus nigra* L., Elder.

Pl. 31, K. 8249, 8-11 + Pl. 40, 82-5-22, 576, 13-16 :

šam <i>riq</i> MAN — DU	šam _{SU} — a — du
šam NIM	šam _{SU} — a — du
šam _{NU} — GI	šam _{SU} — a — du
GI — ŠI — ŠAR	šam _{SU} — a — du

VAT. 9000 :

šam <i>riq</i> MAN-DU	šam _{SU} -a-du
šam NIM	šam
šam _{NU} — GI	šam (vir-gi-si) ,,
šam _{SU} -a-du	šam i ^š at libbi nasa ^{hi} (ŠUR)

Meissner, *MVAG*. 1913, 2, 18, 37, 43, gives also i^š *riq*EN — DÙ = *suadu*. Cf. *riq*MAN-DA *urqit-su*, *KAR*. 203, iv, 8.

(i^š)(*riq*)MAN-DU occurs thus in *MT* :

(a) i^šMAN-DU :

(1) *Simply*: Lungs, †, poultice, *AM*. 55, 1, 8.

(2) *zid* (powder) : one of 56 for blains (*šigati*), bind on, *KAR*. 192, iii, 56 : 10 shekels, for head, †, bind, *CT*. xxiii, 33, 10.

(b) *riq*MAN-DU :

(1) *Simply*: *ext.*: Feet, †, prob. *ext.*, *AM*. 69, 2, 11. Blow (*mišitti*), †, apply, *AM*. 76, 5, 7 : [bind on], 79, 1, 9. Blains (*šigati*), †, bind on, *AM*. 32, 5, 5. Note "with *riq*MAN-DU *irri ênâ^{II}-šu takaddad*", *AM*. 16, 1, 2.

Int. (?) : Too much saliva, †, *AM*. 29, 5, 16.

Enema: †, *AM*. 56, 1, 4 : *KAR*. 157, r. 14. *Stomachic*, †, 10 shekels, *AM*. 84, 1, 2, practically *dup.* of *KAR*. 157, 25 (*RA*. 1929, 55).

(2) *Oil*: in a prescription to bring popularity, † (oil of pine, of myrrh, of *Acorus calamus*, of (?) . . . , of *riq*kanaktu, of *riq* . . .), to anoint, *AM*. 87, 1, 13.

(3) *Seed*: *Enema*, †, boiled in beer and oil, *AM*. 56, 1, r. 5 (*dup.* *AM*. 69, 8, 11). (Similar, *AM*. 56, 1, r. 10, *dup.* *AM*. 69, 8, 15.)

(4) *zid* (powder) : Blow (qi *mišitti*), 1 qa, †, *AM*. 77, 5, 18.

(c) šam *riq*MAN-DA "while green" with šit-GÁN "drugs for a sick anus", mix with fat, apply, *KAR*. 203, r. iv, 8, restored from Pl. 30, S. 698, 15, and a new Nineveh text.

(d) *riq*IM-MAN-DU: *Stomach* (?), †, drink in beer, *Kü*. iii, i, 60.

Temples, †, poultice, *riq*IM-MAN-DI, *CT*. xxiii, 41, 15.

Fumigate: prob. *miqit irri* ("fall of entrails") (or sim.), †, *AM*. 62, 1, i, 5.

(e) *Su-a-di*: to anoint white hair that it become black, . . *su-a-di*, with gall of a black ox, gall of a scorpion, gall of a mouse (ŠIK + TIN), and *punpul[i]*, in oil of cypress of the cemetery, *AM*. 4, 1, 4.

Quantity: 2 (?) carats, †, uncertain use, *AM*. 42, 1, 2 (*su-a-di*).

Note *TR*. ii, 60, K. 2882, r. 8, šumma UD šam_{IM}-MAN-DU ittabši eglu šuatu (*hibi*).

^{ria}DU occurs on a tablet of Bur-Sin's date (*TURK.* 267, 3): Gimil-Sin, Myhrman, *PBE.* "A", iii, Nos. 116, 10.

Much of this points to it being *Sambucus nigra* L.

(1) Its name *suadu*, which might be cognate to the Arabic 'aswad "black", with reference to its black berries (which are indicated in the adjective *nigra*).

(2) Its name ^{šam}NIM, i.e. drug against flies, coincides with *HS.* 165: "The leaves [of the Elder] when bruised, if worn in the hat, or rubbed on the face, will prevent flies from settling on the person," and *BMP.* No. 137: "Fresh Elder leaves are also commonly supposed to be offensive to most insects, hence a decoction of them is sometimes used by gardeners to keep off caterpillars from delicate plants."

(3) ^{šam}NU-GI, either "Not-reed" or "Image-of-reed" would coincide with the property of that Elder, where the bark is easily separated from the pith, as in making pop-guns. ("Every boy that plays with a pop-gun will not mistake another tree instead of the Elder," Culpeper, *Eng. Phys.*, 1814, 119.) "The light pith is cut into balls and used in electrical experiments" (*BMP.* No. 137). "It is now called *Bone tree* in Scotland, from the central pith in the younger branches" *HS.* 169. Doubtless GI-ŠI-ŠAR contains a similar indication. The Latin name *Sambucus* suggests this also.

(4) The gloss ^{giri}giši suggests the word *girišū*, *Arbutus unedo* (*p.* 296). It is conceivable that the Elder-tree with its white flowers was compared to the "tall shrubs or trees, with *persistent, leathery* leaves, and small, paniced racemes of *white* waxy flowers, resembling Lilies of the Valley" (*FP.*² ii, 172) of the *Arbutus*.

(5) "Drug to remove fire of the stomach," and its use in *MT.*, ext. (twice "when green") for lungs, blains, bruises, eyes, saliva, and hæmorrhoids, and int. for stomach, are paralleled by the use of the fresh leaves used in the preparation of a cooling ointment (*BMP.* No. 137), and the flowers particularly in easing the pains of hæmorrhoids (*HS.* 168, 169): "The juice of the green leaves applied to the hot inflammations of the eyes assuageth them" (Culpeper, *Eng. Phys.* 1814, 120): the distilled water of the flowers cleans the skin (*ib.*) and the leaves or flowers distilled in the month of May are good for ulcers on the legs, for eyes, and palsy of the hands.

(6) The very mention of the berry (seed) oil, and "when green", are other indications.

(7) Its use in dyeing the hair black is exactly one of its properties: the Romans used the black elder juice for this (*HS.* 168: cf. Culpeper, *ib.*, 120).

(8) The use of the oil of ^{ria}MAN-DU for popularity is to be seen in the use of Elder flower oil, the flowers yielding a very small percentage of an essential oil. The Elder flowers are used in making an aromatic distilled water and for communicating a pleasant odour to lard (*Unguentum Sambuci*), *FHP.*² 334).

Sambucus nigra L. occurs cultivated in Syria *FP.*² i, 576. *FHP.* *ib.* says it is indigenous to W. Asia.

^{šam}TILLA (rarely is ^{ria}TILLA), ^{šam}urū, *irū* (*Retama Rætam* Forsk., broom, suggested, but not probable).

VAT. 9000 :

<i>šam</i> _{ur} — <i>tu</i> — <i>u</i>	<i>šam</i> ¹ <i>šá</i> — <i>šá</i> — <i>tu</i>
<i>šam</i> _e - <i>dī</i> - <i>na</i> - <i>a</i>	<i>šam</i> „
<i>šam</i> _{gir} - <i>a</i> - <i>nu</i>	<i>šam</i> _{išid} <i>šá</i> - <i>áš</i> - <i>šá</i> - <i>tu</i>

Add to this *Pl.* 30, 79-7-8, 19, *ll.* 8-10 :

<i>šam</i> _{KU-LI-LA-AN-NA}	<i>šam</i> _{pat} - <i>r</i> [<i>a</i>] . . . ¹
<i>šam</i> ¹ <i>šá</i> — <i>šá</i> — <i>ta</i>	<i>šam</i> _{gir} — [<i>a</i> - <i>nu</i>]
<i>šam</i> _e - <i>dī</i> - <i>e</i> - <i>na</i>	<i>šam</i> [„]

The similarity with the KU-LI-LA-AN-NA = *kuliliti* (Landsberger, *Fauna*, 26, No. 347, “ Libelle ”), [KU-LI-L]I-AN-NA = *kuliltu*, *ib.* 44, No. 5, and *kulilānu* = *šam*_{ir}-*ku*(*tu* ?)-[*u* (?)], *ib.* 40, No. 23, should be noted. The *ku-li-li* . . . of *KAR.* 194, iv, 37 (given with others to drink to a woman who has been given noxious drugs) is probably not the plant.

Add to the above equivalences ¹⁸TILLA = *ir-tu-ú*, Scheil, *RT.* 1914, 188, 5 : ¹⁹*ria*TILLA = *ur-tu* (Meissner, *MVAG.* 1913, 2, 18, 46, v. ¹⁹TILLA = *ur-tu*).

This drug occurs thus in *MT.* :

*šam*TILLA (*šam*_{ur-tu}) : for lice on the body, alone, anoint in oil (*Pl.* 43, S. 60, 12 : *KAR.* 203, vii, 33 : in the head, †, *AM.* 1, 2, 7. *Weak hair*, †, bind on, *KAR.* 202, ii, 24, *dup.* *AM.* 3, 2, 7.

*šam*Urtu : “ when a man approaches his wife,” †, uncertain use, *AM.* 65, 7, 7 : *ur-tim*, †, an ointment for *Hand of Ghost*, *AM.* 94, 2, ii, 16.)

*šam*TILLA is described in *BRP.* iv, 37, *JRAS.* 1924, 454, *kima* ¹⁹*bini* *u šāmu* “ like tamarisk and (but) red ”.

(2) *šam*Giranu (*šam*_{girana}), †, drink, *AM.* 22, 5, 6 : alone for jaundice, bray, [drink] in beer, *KAR.* 203, iv, 58, *dup.* Scheil, *RA.* 1916, 38, 24 : alone for *šiki*, bray, drink in asses’ milk, *KAR.* *l.c.*, 40.

In identifying this plant the possibility of it being the broom, *Cytisus*, *Retama*, must not be ignored. From the variation in its spellings it may well be a foreign word : ¹⁸(*ria*)TILLA suggests a highland origin. Culpeper (*English Physician*, 1814, 57) says that “ the continual use of the powder of the leaves and seed doth cure the black jaundice ”, and the juice of the young branches “ boiled in oil is the safest and surest medicine to kill lice in the head and body ”. *Retama Rætam* Forsk. grows in Palestine on hills and in sandy places (*FP.*², 301).

On the other hand although the description that it is “ like tamarisk ” is possible, the addition “ and red ” is not so easy ; and the instance of its determinative in one case, ¹⁹*ria*, indicating a gum, does not confirm the possibility of broom. At the same time the appearance of *ur-tu-ú* in the list of dyes or dyed cloths in *CT.* xviii, 17 (both K. 4211 and K. 9892) K. 4211, obv. 5 ff., must be considered :

¹ Cf. ¹⁹*riapatranam*, p. 126, n. 1.

<i>uq-na-a-tum</i>	<i>in-zu-ri- t[um]</i>
	<i>ar-ga-ma-nu</i>
	„ <i>ar-qu</i>
....- <i>ra-tum</i>	<i>hi-in-zi-ri-bu</i>
...-[<i>z</i>] <i>i</i> (?) <i>mê^{vi}</i>	<i>ur-tu-ú</i>
[<i>ur</i> (?) - <i>t</i>] <i>u</i> (?) - <i>u</i>	MI- TIL
.....	„

and K. 9892, 7-12 :

<i>ur-tu-u</i>	<i>kut-.....</i>
<i>hi-za-ri-bi</i>	<i>kut.....</i>
<i>uq-na</i>	<i>uq-na-a-[tum]</i>
<i>uq-na-a- tum</i>	<i>uq-na-a-[tum]</i>
<i>si-pat šir-pi</i>	<i>uq-na-a-[tum]</i>
ZA-GIN-NA	<i>uq-na-a-[tum]</i>

If this *ur-tu* be the same as, or allied to, the plant of this section and we have to see a dye in it, the *Genista tinctoria* L., or Dyer's Broom, would coincide with it, with its well-known yellow dye (VK. 519, which mentions its use in the Mediterranean, i.e. Samos), which is also used as a diuretic and the seeds as a mild purgative (*ib*). But here again we are challenged by the description "red" given above by the Babylonian scribe; the flowers of this broom and the dye are yellow.

At the same time *ur-tu* occurs in *MT.*, in one case along with various materials to be plaited or spun and knotted (*AM.* 3, 2, 7, *dup.* of *KAR.* 202, ii, 24, translated *PRSM.* 1924, 11) for a woman with weak hair, and in another as *ur-tim* (*AM.* 94, 2, ii, 16), as one of a large number of drugs, chiefly vegetable, but including sulphur and human bone. In this latter a cloth is not indicated, however much the former might demand such a material.

*šam*AŠ, *šam* i⁸*hatti re'i*, *Asa foetida*, probably *Ferula alliacea* L.

*šam*NU-LUH, *šam*NU-LUH-ĦA, *šam**nuhurtu*, *tiyātu*, and (*šam*)NU-LUH-ĦA-(ŠAR), *nuhurtu*, other forms of *Asa foetida*.

*šam**Lasirbi(t)tu*, *laserpitium*.

*šam**Šurbi*, the Syr. *šurbâ*, perhaps *Asa foetida* (see p. 65).

1. The AŠ-groups :

108860 (*CT.* xxxvii, *pl.* 30), iii, 21-5 :

<i>šam</i> šá-mi DINGIR (?) -LUGAL (?) -GAL	<i>šam</i> [AŠ]
<i>šam</i> ia — bu — tu	<i>šam</i> AŠ [<i>ina A</i>]h-la-m[i]
<i>šam</i> ka-an-zu-ú	<i>šam</i> [AŠ] <i>ina Šú-ba-rim</i>
<i>šam</i> šá-mi AŠ ^{vi}	<i>šam</i> AŠ
25. <i>šam</i> GİR-PAD-DU LÚ-[GÀ]L-[L]U	<i>šam</i> AŠ

It is curious that the same name *šam*AŠ should be treated again in the same tablet, *pl.* 32, iv, 20-4 :

20. <i>šam</i> [šá]- <i>mu</i> <i>sámu</i>	<i>šam</i> <i>iš</i> <i>ḥaṭṭi</i> <i>re'i</i>
<i>šam</i> [šá] - <i>mu</i> AŠ (<i>edu</i>)	<i>šam</i> ditto
<i>šam</i> GÌR-PAD-DU LÚ-GÀL-LU	<i>šam</i> AŠ
<i>šam</i> ditto	<i>šam</i> <i>iš</i> <i>ḥaṭṭi</i> <i>re'i</i>
<i>šam</i> ŠÁ — PA	<i>šam</i> ditto

K. 4182 (*Pl.* 34), *r.* 3 *ff.*, properly the bottom of K. 267 (*Pl.* 32), Cols. vi-v, continued by the join K. 4180, B (*Pl.* 32) to K. 267 (*Pl.* 21), Col. vii :

Col. vi	Col. v
[ša- <i>mu</i>] <i>sámu</i>	<i>šam</i> <i>iš</i> <i>ḥaṭṭi</i> <i>re'i</i>
[šam] AŠ	<i>šam</i> <i>iš</i> <i>ḥaṭṭi</i> <i>re'i</i>
[šam]ŠÁ — PA	<i>šam</i> <i>iš</i> <i>ḥaṭṭi</i> <i>re'i</i>
<i>šam</i> LÁL	<i>šam</i> <i>iš</i> <i>ḥaṭṭi</i> <i>re'i</i>
[šam]GÚ -LAL	<i>šam</i> <i>iš</i> <i>ḥaṭṭi</i> <i>re'i</i>
[šam . .](*a) RIM	<i>šam</i> <i>ḥaṭṭi</i> <i>re'i</i>

Col. viii	Col. vii
<i>šam</i>	[šam] <i>iš</i> [<i>ḥaṭṭi</i> <i>re</i> '] <i>i</i>
UZU -	[šam] <i>iš</i> <i>ḥaṭ</i> [<i>ṭi</i> <i>re'i</i>]
<i>šam</i>	[šam] <i>iš</i> <i>ḥaṭṭi</i> [<i>re'i</i>]
NIM	<i>šammu</i> <i>s</i> [<i>ámu</i>]

*šam*AŠ (never ÁŠ) is found in *MT.* thus :

(1) *Simply: ext.: Eyes* (?), †, uncertain use, *AM.* 14, 3, 3. *Temples*, †, bind, *AM.* 103, 1, ii, 15. *Menstruation* (tied between knots of a cord on pelvis, with seed of *šam*TU-LAL) *KAR.* 194, 7. *Ghost*, †, [bray], anoint, *AM.* 94, 2, ii, 20 (*JRAS.* 1929, 806) : 97, 4, 10. *Hand of Ghost*, anoint with oil, and then hang on neck, †, *AM.* 95, 2, 9. *SAG-HUL-ḤA-ZA* (probably), †, bind, *AM.* 14, 3, 14.

Int.: for AŠ^{pl} (= *tanuqati* "screaming", hysteria (?), see *p.* 357), 108860, iii, 24. With *šam*NU-LUḤ-ḤA and root of *šam*NU-LUḤ-ḤA, †, drink in wine or beer, *AM.* 89, 1, 1. *Šammu ša šam*AŠ = ŠA-HUL-LA (*ḥud libbi* "joy of heart") = *ḥil ha-ah-ḥu-u* (gum for coughing), Langdon, *RA.* 1916, 31, 14.

(2) *Seed: ext.: Temples*, †, bind, *CT.* xxiii, 39, 2.

Int.: Strangury, †, in strong wine drink, *AM.* 59, 1, 38 : †, [drink], *ib.* 43. *Gonorrhœa*, †, drink, *KAR.* 193, 4.

Enema (?) : 1 šú, †, enema (?), *AM.* 41, 1, iv, 25.

(3) *Root*: doubtful, to remove AN-TA-ŠUB-BA,¹ *KAR.* 186, r. 24. *šam*ŠĀ-PA, a synonym, occurs thus: for some stomach trouble it is drunk alone in beer, *Kū.* iii, iii, 21: †, in a remedy for weak hair, rub on, *CT.* xxiii, 34, 25, varying with *KAR.* 202, ii, 16, where it is written *šam*ŠĀ-PA-SIB which, since it is synonymous with *šam*ḥaṭṭi re'i, shows that we must see in *šam*ŠĀ-PA an equivalent for simple PA = ḥaṭṭu.²

2. The *šam*NU-LUḤ, *šam*NU-LUḤ-ḤA-group:

Pl. 29, S. 387, "obv." 13: *Pl.* 31, K. 4581, r. vii, 3-7:

[NU-LUḤ-ḤA-ŠAR]	[n]u-ḥu-ur-tú
.....	[tú]-ia-a-tú
.....	... -ra-tú
.....	... -nu-u

81-7-27, 56 (Meissner, *Suppl. pl.* 26).

3. KA-GA-ḤA-ŠAR nu-ḥur-tum

NU-LUḤ-ḤA ŠAR

The various forms of *šam*nuḥurtu occur thus in *MT.*:

(1) (a) *šam*NU-LUḤ and *šam*NU-LUḤ-ḤA together:

Int.: Lungs, †, [drink (?)], *AM.* 55, 2, 6: [drink], *AM.* 83, 1, 7. Spitting blood and coughing, †, *ib.* r. 18.

(b) *Tiyātu*, with nuḥurtu *ṭiritu*³ *adamuti*, with mustard, 1 shekel, for sorcery, drink, *AM.* 85, 1, 5.

(c) *šam*NU-LUḤ-ḤA with *šam*tiyātu: Stomach (no others), drink, *Kū.* ii, i, 34 (cf. the association of the two also in *AM.* 52, 1, 8). *Hand of Ghost*, †, drink, *AM.* 76, 1, 9, 13, cf. 3. With root of *šam*NU-LUḤ-ḤA, see *Root*.

(2) *šam*NU-LUḤ without *šam*NU-LUḤ-ḤA:

Int.: Lungs, alone, Meek, *RA.* 1920, 179. Sm. 22, 12: Strangury, †, drink *šam*NU-LUḤ *ṭiritu*, *AM.* 60, 1, 15. Sorcery, †, probably drink, *AM.* 87, 5, 12.

Note gum of NU-LUḤ, uncertain use, †, eyes, *AM.* 92, 8, 6.

(3) *šam*NU-LUḤ-ḤA, without *šam*NU-LUḤ:

(a) *Simply*: ext.: Eyes, †, apply, boiled in oil and white wax, *AM.* 19, 6, 7. Teeth, †, pour into cavity ([ina nu]ḥurti), *AM.* 30, 13, 3. Cleanse mouth, †, *AM.* 78, 1, 13 (*AJSL.* 1929, 4). "Poison" (*šimmat*), †, poultice, *AM.* 98, 3, 9. Sore or blister (*umṣati*), to remove, †, prob. ext. *AM.* 17, 5, 7.

Int.: Excessive saliva, †, drink, *AM.* 31, 4, 12. Jaundiced eyes, alone, drink in beer, *Kū.* iii, iv, 23. Cough, drink alone, in oil and kurunnu-beer, *KAR.* 203, iv, 29: †, drink, *AM.* 81, 8, 5. Lungs, alone, drink, *AM.* 54, 1, 4: anoint and also [drink] hot, †, *ib.* 6. Retention, strangury (*ḥiniqtu*), †, drink, *AM.* 60, 1, 5, 21: 89, 4, 8. Menorrhagia, drink alone in beer, *KAR.* 194, 1, 32: prob. the same trouble, with beer, licorice, and

¹ Described in *BRP.* iv, 37 (*JRAS.* 1924, 452).

² Note also *D.* 597, 239, *ŠĀ.PA.ḤAR.ḤU.NA = ḥaṭṭi ḥuḥaru.

³ I translated this in *Bab.* 1934, xiv, 121, "crushed," from Syr. *ṭ'rá*, percussit. I am not sure, however, whether this word "crushed" may not be redundant; and I suggest as an alternative the Arab. *ṭariy* "fresh, still moist". Actually, according to *BMM.* 336, *alliacea* must be fried before use as a medicine, inasmuch as raw *hiṅga* causes vomiting.

Adamuti must surely be "red", in reference to the colour of the gum (a dark red), but the form of the word is peculiar.

pine-gum, *ib.* iv, 4: for NI-NE (some menstruating trouble), dry, drink alone in beer, *ib.* iv, 13. *Limbs* "poured out", 5 shekels¹ of *šam*NU-LUH-ĤA *ṭiritu* with 1 (?) shekel of yellow ochre and 1 shekel of pine gum, [drink], *AM.* 31, 1, 2.

Enema: †, *AM.* 56, 1, 7: 94, 2, 5, 9.

(b) *Root*: (1) *išdu*: sore or blister (*umṣati*), prob. alone *ext.*, *AM.* 17, 5, 7. *Sorcery*, † (with simple *šam*NU-LUH-ĤA), drink, *AM.* 89, 1, 6. *Suppository*, in fat, *KAR.* 201, r. 24. (2) *úr*: *Hand of Ghost*, †, in beer drink, *AM.* 74, 1, 21.

(c) *Seed*: *Ears* alone, *ext.*, *AM.* 38, 4, ii, 10 (paralleled by seed of fir, and by roasted roses, in the two subsequent lines).

(d) *Gum*: *Lungs*, †, poultice, *AM.* 55, 1, 4 (NU-LUH-ĤA). Uncertain disease, alone in honey, oil, and . . . , drink, *KAR.* 203, iv, 43. *Strangury*, alone, in beer drink, anoint in oil and introduce by tube in penis, *ib.* i, 21.

(e) *Water*: *Enema*, †, for *strangury*, *KAR.* 157, r. 5.

(f) *ZID* (powder): Warm enema, †, *AM.* 41, 1, iv, 18. *šam*NU-LUH-ĤA and *šam*ZID, (= *šam*NU-LUH-ĤA), *ext.*, uncertain disease, †, *KAR.* 207, 19.

(4) *šam*Tiyātu (cf. with *šam*nuḥurtu above). Retention (*ḥiniḡti*), prob. drink, *AM.* 59, 1, 13. "Poison" (?), uncertain, *AM.* 29, 2, 4. Insert in *uterus* of pregnant woman, †, *KAR.* 195, 9. (*šam*ti-*dt*, one of 35, to [put] in *anus*, after boiling in beer, *KAR.* 202, iv, 43. *Enema*, with many others, *KAR.* 157, 20.

The gum (*ḥīlu*) is applied to eyes, †, *AM.* 17, 4, 9. A sack (*naruqu*, Meissner, *Beitr.* ii, 52) of *ḥi-ḥi ti-ia-ti* mentioned, Clay, *BBS.* ii, 2, 107, r. 46.

With these details we can now discuss the various words:

It will be seen that I was entirely wrong in reading *šam* i^šPA-ŠIB as *šam*i^š-pa-ru in *AH.* 98. Misled by the evidence of *šammu šamu* "red drug", and the similarity of the Arab. 'asfar "safflower", as well as the possible restoration [*šam*i^š]-pa-ri in the order of the *VM.* (*AH.* xiv), I had assumed that the evidence was overwhelming, in spite of the presence of *šam*AŠ in the same group, which I had tried to show was *Asa foetida*. Now, however, the evidence of *šam* i^šPA-ŠIB as *ḥallī re'i* is too strong; the variant form *šam*ŠA-PA-ŠIB for one equivalent, instead of *šam*SA-PA, adds its testimony; and the correct restoration in *VM.* is not [*šam*i^š]-pa-ri, but [*šam*GI-RIM ap]-pa-ri, with *Mat.* 88, 1, 75 [*i*^š]GI-RIM šá (?) ap-pa-ri li-bir (?) (cf. *Pl.* 42, K. 274, 6).

We must therefore return to evidence from *šam*AŠ, presumably a form of *Asa foetida*, which I connected with the Persian *aza* ("mastich", the base of the latinized *asa*).

First, it would be as well to consider the details of the plant and drug:

CPI. 533 says that there are some sixty kinds of *Ferula*. In medicine, *P.* 196 gives the uses of *Asa foetida* in general as nervous, stimulant, expectorant, laxative, and carminative, for flatulence, hysteric paroxysms, chronic bronchitis, and as enema. In India *F. alliacea* is given for dyspepsia, colic, hysteria, and as an aphrodisiac, and as enema (*BMM.* 336). *Diosc.* iii, 84, prescribes silphion (some form of this drug) for eyes, baldness, and dysmenorrhoea, and in the Talmud (Preuss, *Bib. Talm. Med.*,

¹ 5 shekels also prescribed, *AM.* 89, 4, r. 10, probably drink for some form of *ḥiniḡti* (retention).

205) 3 shekels of *hiltûh* are to be used in cold or warm water for "heaviness of the stomach" on three successive days. *IB.* 688 gives it as diuretic.

We can next consider the species probable:

(a) *Ferula alliacea* Boiss. (from Khorasan, Kirman), the edible form: gum from upper part of the root, exuding as an opaque white semi-fluid, gradually becoming dull yellow or dark. Resin blackish-brown, resinous mass reddish hue. Held in esteem by Eastern doctors from the earliest times. Names *hiṅga*, *angusheh*, *aṅguza*, *zendebuj* (*CPI. ib.*: *BMM.* 336). The fact that this is called *alliacea* will be noted presently in comparing ^{šam}Aš. (b) *F. foetida* Regel (from Persia), the European drug of commerce (*CPI.* 534): the method of obtaining it is as follows (*ib.* 535):

"The tap-roots are exposed for a couple of inches. A thick slice is cut from the top, from which a quantity of milk exudes. The root is then protected from the sun by a domed structure, 6 to 8 inches in height, called a *khora*, formed of twigs and clay, and which has an opening towards the north. In five or six weeks' time a thick, gummy, reddish substance appears in irregular lumps on the exposed substance of the root. This is scraped off or removed, along with a slice of the root, and placed in a leather bag." It is called *hingra*, etc. (*ib.* 534).

(c) *F. narthex* Boiss. (= *Narthex Asa foetida* Falc.) (from Kashmir, *CPI.* 536).

(d) *F. scorodosma* Benth. et Hook. (from E. of Sea of Aral and S.E. of Samarcand, *FHP.* 2nd ed., 315).

We must not omit the different varieties mentioned by ancient authors: *IB.* No. 158 speaks of two forms, *hiltû*, the gum, and *mahrû*, the root, just as Theophrastus speaks of one kind from the stem, and the other from the root. Avicenna (quoted *CPI.* 533) speaks of the "good" and the "foetid". Pliny, *NH.* xiii, 43, speaks of the *narthex* and the *narthecea*. The two words *μαγνδαρις* and *μασπετον* should also be mentioned. Note also that *IB.* 158 says that the *Asa foetida* grew near Babylon, and that in more modern times so large a quantity as 3,000 maunds of Tabriz *Asa foetida* is mentioned by Pelly (*Trans. Bombay Geogr. Soc.*, xvi, 1860, 416) as having been exported from Bushire.

Taking, then, the theory that ^{šam}Aš is *Asa foetida*, the first point to observe is that its name Aš would suggest a connection with the mineral ^{aban}Aš-GE₄-GE₄ *ašgikû*, *inib karaši* ("fruit of leek"), arsenic, a metal which has an alliaceous smell when roasted, which would bring it into association with the garlic-like smell of the *Asa foetida*, especially *F. alliacea* (*DACG.* 54). The next point is that its name ^{šam}Aš = *edu*, the "single plant", i.e. the single stalk, just as Theophrastus (*EP.* vi, ii, 7) describes the *narthex*, as growing very tall and with a single stalk, which is jointed (and in this last we can also see an association with the Assyrian alchemist's synonym for ^{šam}Aš as "the human-bone plant", p. 352). *Narthex Asa foetida* Falconer (= *Ferula narthex* Boiss.) has an erect stem of ten feet high, throwing out from near the base a regular series of branches bearing compound umbels. *F. scorodosma* Benth. et Hook. resembles the preceding, but its stem, 5-7 feet high, is nearly naked (*FHP.* 2nd ed., 314). Pliny's description of the *Ferula* (*NH.* xiii, 42) as having a "stalk divided into knotted joints" and as "making good

walking-sticks for the aged ” comes very near our “ human-bone plant ” and the synonym *ḥatti re'i* “ shepherd's staff ”.¹

Thirdly, note *VM.*, *Pl.* 42, K. 4140, B, i-ii, 17 : *Pl.* 44, i-ii, 42 : *Mat.* 88, 1, 65 :

šame-du | *ina pu-uš* (or *nit*) -[*tú*]

The latter word can hardly be *buštu* “ sexual part ”, since a more definite medical word would have been used. Possibly it is to be read *punitru*, and thus is comparable to the Syr. *pann'thā* “ the back of the hand ”, i.e. used for staining the back of the hand, just as we find *šamnuḥurtu*, another form of *Asa foetida*, was used in Assyria (*p.* 358) : it is not only the palms and nails which are stained with henna in the East nowadays, but even the backs of the hands (*Scripture Manners and Customs*, S.P.C.L., 1913, 231).

Fourthly, there is evidence from its synonym *šammu sammu* “ red drug ”. The gum of *Asa foetida* takes on a reddish-brown colour : *cf.* *MPB.* ii, 778 : “ Das ausgeflossene Secret ist anfangs rein weiss (wie bei Galbanum . . .), nimmt aber an der Luft oberflächlich bald eine zart rothe, dann rothviolette, später ins Braune gehende Farbe an, während der wachsglänzende Kern weiss bleibt,” much as Pliny says of the magydaris, a form of *Asa foetida* (or similar), that it ought to be slightly red without, and, when broken, quite white and transparent within (*NH.* xix, 16). This synonym *ša(m)mu sammu* actually occurs in *MT.* (*Kü.* iii, iv, 14) along with *šamLAL*, etc., in a prescription for some form of stomach trouble (jaundice ?), just as the other form of *Asa foetida*, *šamNU-LUH-ḤA* is used, alone, for jaundice, drink in beer (*Kü.* iii, iv, 23) ; it should be added that *Asa foetida* is a diuretic, which would have its effect on jaundice, *IB.* 688.

Lastly the medical uses of *šamAš* coincide with those of *Asa foetida*. We have a gum (*ḥīlu*) of *šamAš* prescribed for coughing (i.e. the bronchitis of *p.* 355) ; *šamAš* itself is used ext. for ghostly seizure (*cf.* the “ hysteric paroxysms ” of *p.* 355, or perhaps the smell of *Asa foetida*, which drives away the ghost, as in medieval magic, with which *cf.* my *Sem. Magic* 149) : and int. for strangury (the “ diuretic ” of *IB.* above), gonorrhoea (*ib.*), cough (like the gum, above), and as “ a drug for screaming ”, perhaps the hysteric paroxysms and hysteria, of *p.* 353 ; and perhaps as enema (*p.* 355). Its synonym *šamŠA-PA* is used for weak hair, just as *Diosc.* recommends silphion for baldness.

Of the other forms of this group, it might be noted that there is a vague similarity of sound between the Persian *angusheh*, *hingiseh*, and *angusa*, and the name for *šamAš* in Šubarū, *šamkanzū*.

(2) Leaving *šamAš* as one form of *Asa foetida*, we can go on to *šamNU-LUH* and *šamNU-LUH-ḤA* (*tiyātu*, *nuḥurtu*), which I believe are also forms of *Asa foetida* (*AH.* 132). That *šamNU-LUH* and *šamNU-LUH-ḤA* are distinct is obvious, inasmuch as they occur side by side in the same prescription (*p.* 354), and similarly *šamNU-LUH-ḤA* is distinct from *šamAš*, for a similar reason (*cf.* *AM.* 89, 1, 1, and 6). At the same time *šamtiyātu* and *šamnuḥurtu* are obviously not far apart in meaning, since they occur in the same syllabary (*p.* 354) ; on the other hand their relation to *šamAš* is more remote, since they are not included in the synonyms for this

¹ Note in Arabic that *asā al-rū'i* is the *Dipsacus fullonum*, and also apparently *Agrimonia Eupatoria*, Löw, *Ar. Pfl.* 35, Herzfeld, *Beih.*

drug, so far as we know. If we might draw an inference from our evidence, it would appear, since $\text{šam}^{\text{am}}\text{NU-LUḪ-ḪA}$ is definitely *nuḫurtu* (p. 354), and since $\text{šam}^{\text{am}}\text{NU-LUḪ}$ seems to take the place of *tiyātu* alongside $\text{šam}^{\text{am}}\text{NU-LUḪ-ḪA}$, that it is possible that $\text{šam}^{\text{am}}\text{NU-LUḪ} = \text{tiyātu}$.

To identify $\text{šam}^{\text{am}}\text{nuḫurtu}$ and $\text{šam}^{\text{am}}\text{tiyātu}$ as forms of *Asa foetida* we have the following evidence :

(a) $\text{šam}^{\text{am}}\text{Tiyātu}$ has a gum (*ḫīlu*). *Tiyātu* has been correctly compared to the Aram. *tî'āh* (see *Kü.* 85), but the accepted meaning of this latter as *ranunculus* (e.g. cf. Zimmern, *AF.* 58) must be challenged. If this word = the Assyrian *tiyātu*, the medical uses of the latter make *ranunculus* impossible. It would have been out of the question for Assyrian doctors to have prescribed the *ranunculus* as $\text{šam}^{\text{am}}\text{tiyātu}$ is in *MT*. Ranunculaceæ are plentiful in Syria and Palestine, but these are so frequently acrimonious and even poisonous that, in spite of their use sometimes as purgative and emetic (*GM.* 10), such a use in Assyria would have been contrary to any expectation. Moreover, the *ranunculus* (buttercup) is not quoted in Syriac medicine at all. Indeed, the presence of a "gum" (*ḫīlu*) of *tiyātu* is final.

FJ. iii, 125, says that "in Babylon hielt man in gaonäischer Zeit *tiyah* für 'ikar ag'dhāna", i.e. *Asa foetida*. According to Levy (*Neuh. u. Chald. Wörterb.* iv, 639) quoting Maimonides, the *tî'āh* is said to be the root of the *ḫillith* (= *Asa foetida*). Obviously, if the Assyrian $\text{šam}^{\text{am}}\text{tiyātu}$ is a form of *Asa foetida*, *ḫillith* is merely a foreign garbling of the Assyrian *ḫīl šamtiyāti* "gum of *tiyātu*". The root may be cognate to the Syr. *t'wā* "wound", parallel to $\text{šam}^{\text{am}}\text{nuḫurtu}$ "the slit plant" (with reference to the slitting of its root). In the Ras Shamra text the simple form *tyt* may be *Asa foetida* (Virolleaud, *Glecs.* i, 1938, 24).

(b) $\text{šam}^{\text{am}}\text{Nuḫurtu}$, from *naḫāru* "to slit", as *Maqlû* v, 38, shows : *kima šam^{am}NU-LUḪ-ḪA-ŠAR littahḫira šapāle^{vi}-šá* "like *Asa foetida* may her lips be slit". The reference is, of course, to the method of cutting the *Asa foetida* root (p. 354) (cf. also *ib.* vi, 127, *dannat šam^{am}nuḫurti-ma unahira kal kišpiki* "strong though the *Asa foetida* be, I will slit all thy sorcery (like it)" (the exact translation not quite certain). As is shown on p. 354 the $\text{šam}^{\text{am}}\text{nuḫurtu}$ is used ext. for teeth, eyes, sores, and poultices, and int. for overmuch saliva, jaundice, lungs, cough, strangury, menorrhagia ; as enema and suppository ; its root for the Hand of a Ghost, its seed for ears, its gum ext. for lungs, and int. for strangury, its water for strangury, and its powder in a warm enema. So much of this may be paralleled by the more modern use (p. 355) that I think the medical evidence may be said to coincide well.

Ḫīl nu-ḫur-tim is found as far back as Kassite times (Waschow, *MAOG.* 1936, x, 1, 35, l. 31).

One point worthy of particular notice is the use of $[\text{šam}^{\text{am}}\text{NU-LU}]Ḫ-ḪA$ as one of the four plants used for staining arms (hands), the other three being turmeric, mustard, and saffron¹ (*Pl.* 48, *Rm.* 328, vi, 2-4), the Assyrians thus following the Arab custom of staining the hands yellow as with henna. The oil of *Asa foetida* is of a light yellow colour (*IMP.* i, 631), and it must not be forgotten that that particularly yellow paint, gamboge, is also a gum resin.

¹ It would thus appear that henna was not known in Assyria.

(3) There are still two classical words, *silphium* and *laser* (*laserpitium*), which are uncertain. The former would appear to have been an edible product (for a picture, see Maspero, *Passing of the Empires*, 555), and the latter probably *F. foetida* (CPI. 533). In this latter connection we may perhaps compare the Assyrian *la-sir-bi-tu* which occurs (a) 108860, iii, 26 (CT. xxxvii, 31, $\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{a-mi} \text{\textcircled{S}}\text{TIR} = \text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{a-sir-bi-tu}$; and (b) $\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{a-sir-bit-tu}$ in a list, Pl. 16, 93084, 13.

Laser was obtained from India and Persia in Roman times, being mentioned among the dutiable articles at the Roman custom-house at Alexandria (2nd cent., *FH*. 2nd ed., 315). Hehn (*Kulturpfl.* 189, accepts *laserpitium* as probably *Asa foetida*.

(4) Finally, there is the Assyrian word *šurbi šar* in *MB.*, r. 65, with which Meissner properly compared the Syr. *šūr'bhā* (the milk of *ag'dhānā*, *FJ*. iii, 455); but *FJ*. iii, 471, at the same time, maintains that this is not 'anqudān' actually, but 'anqudān' rūmī Seseli, and that *šūr'bhā* is not the *Asa foetida*.

We may therefore sum up the words for *Asa foetida* thus: $\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{a}\text{\textcircled{S}}$, $\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{a-PA}$, $\text{\textcircled{S}}\text{ammu s\textcircled{a}mu}$ ("the red drug") "the human-bone plant", and *ḥaṭṭi re'i* ("shepherd's staff") represent the single-stemmed *Asa foetida*, the $\text{\textcircled{S}}\text{a}\text{\textcircled{S}}$ being the equivalent of the Persian *aza*, and the latinized form *asa*, with a connection through its garlic taste and smell with the arsenical $\text{\textcircled{S}}\text{a}\text{\textcircled{S}}\text{-GE}_4\text{-GE}_4$; the "shepherd's staff" contains the same idea as the Latin *Ferula*; the use of $\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{a}\text{\textcircled{S}}$ in *MT.* is satisfactory as an equivalent of *Asa foetida*. $\text{\textcircled{S}}\text{am}\text{\textcircled{N}}\text{\textcircled{U}}\text{-LUḤ}$, perhaps *tiyātu* and $\text{\textcircled{S}}\text{am}\text{\textcircled{N}}\text{\textcircled{U}}\text{-LUḤ-ḤA}$ (= *nuḥurtu*, similar in sound to the Arab. *mahrūt* (?), the "white and sweet" kind of *Asa foetida* in *IB*. 158, and actually the equivalent of the root of *anjodān*, *FJ*.² iii, 454) are also forms of *Asa foetida*, the former being the *tī'āh* of the Hebrews, while its gum, *ḥīl tiyātu* is the equivalent of the Heb. *ḥiltīth* (which is thus disproved to be *ranunculus*), and the latter used as one of the drugs for staining hands like henna, which suggests that while we have a red sort in $\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{a}\text{\textcircled{S}}$ ($\text{\textcircled{S}}\text{ammu s\textcircled{a}mu}$), we have a yellower kind in *nuḥurtu*. Finally the Assyr. *lasirbitu* would appear to be the original of the classical *laserpitium*, and *šurbi šar* the Syr. *šūr'bhā*, whatever its exact meaning may be.

($\text{\textcircled{S}}\text{am}$) $\text{\textcircled{S}}\text{i}\text{\textcircled{h}}\text{\textcircled{u}}$, *Artemisia Judaica* L. (*et al.*), wormwood.

($\text{\textcircled{S}}\text{am}$)($\text{\textcircled{r}}\text{\textcircled{ia}}$)*Bariratu*, *Ferula Persica* Willd., *Sagapenum*.

($\text{\textcircled{S}}\text{am}$)($\text{\textcircled{r}}\text{\textcircled{ia}}$)*Arganu*, *Amyris Gileadensis* (or sim.), Balm of Mecca.

Pl. 25, K. 4398 + 4418, iii, 5-11 : Pl. 38, K. 14087 reverses the order of the sections :

$\text{\textcircled{S}}\text{am} \text{\textcircled{r}}\text{\textcircled{ia}}\text{\textcircled{m}}\text{\textcircled{ar}} - \text{\textcircled{g}}\text{\textcircled{u}} - \text{\textcircled{h}}\text{\textcircled{u}}$	$\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{i} - [\text{\textcircled{h}}\text{\textcircled{u}}]$
$\text{\textcircled{S}}\text{am}\text{\textcircled{m}}\text{\textcircled{ar}} - \text{\textcircled{g}}\text{\textcircled{u}} - \text{\textcircled{n}}\text{\textcircled{u}}$	$\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{i} - [\text{\textcircled{h}}\text{\textcircled{u}}]$
$\text{\textcircled{S}}\text{am}\text{\textcircled{Z}}\text{\textcircled{A}} - \text{\textcircled{L}}\text{\textcircled{U}}\text{\textcircled{M}}$	$\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{i} - [\text{\textcircled{h}}\text{\textcircled{u}}]$
$[\text{\textcircled{S}}\text{am}\text{\textcircled{L}}\text{\textcircled{I}} (?) - \text{\textcircled{P}}\text{\textcircled{A}}\text{\textcircled{R}} (?)$	$\text{\textcircled{S}}\text{am}\text{\textcircled{S}}\text{i} - [\text{\textcircled{h}}\text{\textcircled{u}}]$
$\text{\textcircled{S}}\text{am} \text{\textcircled{r}}\text{\textcircled{ia}}\text{\textcircled{ar}} - \text{\textcircled{g}}\text{\textcircled{a}} - \text{\textcircled{n}}\text{\textcircled{u}}$	$\text{\textcircled{S}}\text{am}\text{\textcircled{ar}} - [\text{\textcircled{g}}\text{\textcircled{a}} - \text{\textcircled{n}}\text{\textcircled{u}}]$
$\text{\textcircled{S}}\text{am}\text{\textcircled{u}}\text{\textcircled{r}} - \text{\textcircled{n}}\text{\textcircled{u}} - \text{\textcircled{u}}\text{\textcircled{q}} - \text{\textcircled{q}}\text{\textcircled{u}}$	$\text{\textcircled{S}}\text{am}\text{\textcircled{ar}} - [\text{\textcircled{g}}\text{\textcircled{a}} - \text{\textcircled{n}}\text{\textcircled{u}}]$
$\text{\textcircled{S}}\text{am}\text{\textcircled{P}}\text{\textcircled{I}} - \text{\textcircled{P}}\text{\textcircled{I}} - \text{\textcircled{n}}\text{\textcircled{u}} \text{\textcircled{S}}\text{\textcircled{a}} \text{\textcircled{S}}\text{\textcircled{a}}\text{\textcircled{d}}\text{\textcircled{i}}(\text{\textcircled{i}})$	$\text{\textcircled{i}}\text{\textcircled{S}}\text{\textcircled{i}}\text{\textcircled{l}} \text{\textcircled{S}}\text{\textcircled{a}}\text{\textcircled{m}}\text{\textcircled{a}}[\text{\textcircled{r}} - \text{\textcircled{g}}\text{\textcircled{a}} - \text{\textcircled{n}}\text{\textcircled{i}}]$

Rm. 367 (V R. 26, No. 2: Meissner, *Suppt.* 23): Johns, *PSBA.* xxvii, 35:

iš ri ^a EN-TAR-AL (?)	ar-ga-(an)-nu
iš ri ^a ar-ga(n)-nu	šu
iš ri ^a mar-gu-nu	šu
iš ri ^a mar-gu-šu	šu
iš ri ^a ba-ri-ra-tu	šu

Pl. 40, 82-5-22, 576 + Pl. 31, K. 8249, 1, restored from VAT. 9000.
Cf. Pl. 31, K. 8846 + Rm. ii, 316, 14-24:

šam ri ^a ár — ga — nu	šam si — i — hu
šamZA — LUM	šam „
šamLI — PAR	šam „
šam si — i — hu	šamKI — NÀ — [^d]Ištar
šam ri ^a mar — gu — nu	šamba-ri-ra-tú
šam ri ^a mar — gu — su	šam sa-muši-e ¹ -ri
2 šam i ⁹ hašhur a-bi ut-liš	šammar-gu-šu ra-b[i]
šam ur — nu — gu	šamba-ri — ra — tú
3 šam ú — zu — gi — . . . 5	šam „ ina Šú-ba-ri
4 šam ha — ra — . . . 5	šam „ ina Qu - te-e
4 šam tu — uš — kar 6	šam „ ina Šú-ba-ri
4 šammar-gu-š[u (?)]. . . .	šamba-ri — ra — tú
4 šamba-ri-la-nu ut — [liš (?)]	šamba-ri-ra-tú TUR-ŠAL (?) - DAN
šamba-ri-ra-tú	šamba — ri — lu

We have three drugs which are at times given as synonyms of each other, thus making the identification difficult. At the same time VAT. 9000, which is responsible for most of the difficulty, is not, I think, so trustworthy as the Kouyunjik texts, and hence, in case of doubt, it is better to trust the latter. In MT., on the other hand, the three drugs šam³sihu, šam³arganu, and šambariratu are clearly distinct.⁷

(a) šam³Si³hu is undoubtedly the Syr. šihā, *Artemisia Judaica* L. (cf. Fonahn, *OLZ.* 1907, 640): the Arab. šiyāh = *A. densiflora* Boiss.: ših (doubtless the same, *A. Judaica* L. (*FJ.*² i, 380): and *A. Herba-alba* Asso (*ib.* 381). Ainsworth (*T.*, 177), mentions *A. fragrans* and *A. absinthium* at El-Hadhr, and one kind of *Artemisia* in the Jebel Maklub district (*ib.* ii, 182). Rich says that the country near Kirkuk is covered with wormwood (*Koord. i*, 41, cf. 50). Xenophon mentions a plain full of absinthium below Thapsacus (*Anab. i*, v). I owe to Godbey's article in *AJSL.* 1929,

¹ VAT. 9000 omits.

² K. 8846 adds another line šam ri^ama[r]. . . .

³ VAT. 9000 adds a line šam „ = šam³ar-ga-nu.

⁴ VAT. 9000 omits this line.

⁵ From K. 8846, presumably correct.

⁶ Possibly the same as ri^ati-iz-kur "which closes your mouth", Thureau-Dangin, *RA.* 1921, 169.

⁷ Even when one or other of the triad is absent in a prescription, its employment can be frequently discovered in similar and parallel receipts.

226 ff., a quotation from Apollonius (i, 21), where it is said that towards Babylon the land was so full of absinthe that all other herbs were disagreeably bitter.

The identification is confirmed by the synonym for *šam rīa margušu* (one of this group, but not actually a synonym of *šam sīhu*), i.e. *šam samuṣēri*,¹ the Syr. *šōṣrā*, *A. vulgaris* L. (AH. 107 : cf. FJ.² i, 385). This, coupled with the grouping of the three drugs (*šīhu*, *arganu*, *bariratu*) together, shows how very closely they were allied. Actually, these three drugs are as a rule quoted all together in prescriptions, and we can now discuss their medical uses :

(a) (*šam*)*Sīhu*.

(1) *Simply*: *Ext.*: Feet, with [*arganu* and *ba*] *riratu*, †, in milk and beer, bind on, AM. 70, 7, i, 5. Eyes, with *ariratu*, †, AM. 8, 1, i, 4. Ears, probably, [apply], AM. 33, 1, 3. Swellings with (*šam*)*arganu* and (*šam*)*bariratu*, †, bind on, AM. 15, 1, i, 14 (JRAS. 1937, 283) : 73, 1, i, 13 : 74, 1, ii, 13. Bruise (*dikši*), with *arganu* and *šambariratu*, dry, pound, sift, apply with wheat flour, AM. 96, 1, 14. Blow (*mišitti*) with *arganu* and *ḥum-ḥa* [apply], AM. 79, 1, 20, and with *arganu* and *bariratu*, †, as ointment, AM. 94, 2, ii, 16. Cough, †, prob. *ext.*, AM. 50, 3, 7 : constriction of lungs, † (including *arganu*), use uncertain, AM. 53, 4, 16 + 63, 6, 12. Almost certainly for pleurisy, poultice with *arganu* and *ḥum-ḥa*, AM. 87, 6, 5. Breast, with *arganu*, †, bathe, AM. 49, 1, ii, 7, *dup.* 48, 5, 4. "Poison," etc., with *arganu*, *bariratu*, †, bathe, AM. 52, 5, 5.

Int.: Uncertain, with *šam arganu*, †, in beer drink, and anoint with oil, AM. 88, 2, r. 9. In one of 3 *mašqiāti* (potions), †, including *ḥum-ḥa*, but not *arganu*, AM. 41, 1, r. 3.

Enema: 10 shekels, with 10 shekels of *šam arganu* and 10 of *sig-bu-rat*, †, for bruise (*dikši*), KAR. 182, 24 : 5 shekels with 5 of *arganu* and 5 of *ḥum-ḥa* [sic], †, for TAB-UD-DA, etc., KAR. 157, 27, *dup.* AM. 84, 1, ii, 3. 1 *pitqu* of *šīhu*, *ḥum-ḥa*, but not *arganu*, †, AM. 41, 1, iv, 16.

Fumigate: with *bariratu* and prob. [*arganu*], †, when a ghost lies on a patient, AM. 99, 3, 6 : †, but not *ḥum-ḥa* or *ḥum-ḥa*, *ib.* 14.

(2) *ZID* (powder) : of *šīhu*, of *arganu* [sic], and of *ḥum-ḥa*, †, for blains (*šigati*), KAR. 192, 52-3 (note Meek, RA. 1920, 181, S. 1701, iii, 3, *šī-i-ḥu*).

There is a curious ritual for a woman sick of *naḥšāte* (menorrhagia) ending with the "pouring out" (*ta-sa-raq*) of *šīhu*, *arganu*, and *bariratu* before the door, the woman then reciting a *šegû* before the door, and before a god (?), KAR., 194, 14. The symbolism may perhaps be that with the door representing the opening of the uterus, the drugs represent possibly the menstrual fluid, although as will be seen later, the two latter do not produce a red-coloured fluid.

(b) (*šam*)*Bariratu*.

Besides the instances quoted above, *šam bariratu* and *šam arganu* occur without (*šam*)*šīhu* : *Ext.*: Feet (without others) bathe in water, AM. 18, 5, r. 2 + 75, 1, iv, 2 : rub (without others), anointing with others subsequently, AM. 74, 1, iii, 6.

¹ *šam samuṣēri* must surely be for *šammu šēri* "plant of the desert" (a good description of the *Artemisia*), the second sibilant causing the first *š* to become *s*.

But *šambariratu* occurs without the other two: "poison," †, poultice, *AM.* 98, 3, 11. *Fumigate: Stomachic*, †, *AM.* 62, 1, i, 6.

What is important to note is that *ḥum-ḥa* replaces *šambariratu* constantly ¹ in this triad of drugs (*šihu*, *arganu*, and *šambariratu*) and indeed in *KAR.* 191, 18, *dup.* in part of *AM.* 70, 7, i, 6, *ḥum-ḥa* varies with . . . *-ri-ra-tú* in the triad (*cf. AH.* 172).

ḥum-ḥa is used in *MT.* in addition to the above: *Ext.: Lungs*, †, prob. ext. *AM.* 55, 1, r. 8 (*šihu*, *šambariratu*, *arganu* not visible). *Int.: Strangury*, †, drink in wine or beer, *AM.* 59, 1, 34 (without *šihu*, *arganu*, or *šambariratu*).

Before going into the evidence for the identification of *arganu* and *šambariratu*, we can complete the equivalence *šihu* = wormwood, *Artemisia*. We have already seen that *samušêri* (evidently allied to it) = Syr. *šôšrâ*, *Artemisia vulgaris* L.; the bitterness of the wormwood, I might add, appears to be indicated by the synonym on p. 360 for *margušu* (= *samušêri*) ("In the mouth of the common people"), *šašhur abi*, the gall-apple.

The use in *MT.* of *šihu* (eyes, ears, swellings, bruises, cough, pleurisy, int. (rarely), as enema, and in fumigations) can be compared to that of the *Artemisia* in later times.

CPI. 93 says that *A. absinthium* L. is a violent narcotic poison in large doses, but in medicine is an aromatic tonic and anthelmintic. According to *IMP.* 699 ff., *A. vulgaris* L. is used in India as a stomachic, for menses, and ext. for fomentations: *A. Persica* Boiss. (vernacular *shih*) is used as a tonic, febrifuge, and vermifuge, and *A. maritima* L. is an anthelmintic, is used for gleet, ague, and as a poultice for scorpion-stings. The *New Cycl. of Botany* (Clark, no date) says of *A. absinthium* that its taste is intensely bitter: it is used in stomachic complaints, intermittent fevers, jaundice, and against worms: "the plant steeped in boiling water, and repeatedly applied to a bruise, will remove the pain in a short time, and prevent the swelling and discoloration of the part." Lane, *Manners*, i, 344, speaks of fumigation by it in modern Egypt. In ancient times it was used as a girdle against ghosts (Frazer, *Golden Bough*, ii, 287): Aretaeus of Cappadocia (A.D. 100-150) prescribes it for melancholy, and Apuleius knew that it was useful in driving away demons (quoted Godbey, *AJSL.* 1929, 226). Doughty (*Ar. Des.*, i, 379: ii, 280) speaks of it as a gum, mentioning the gums of the milder wormwoods as put into milk and mereesy (beer) by the Arabs.

Šihu is thus clearly *Artemisia*, wormwood, and we can go on to the other two:

(b) *Bariratu*, marked with the det. ^{riq}, must be as Langdon saw (*PBE.* xxxi, 1914, 73, n. 5) the same as the Syr. *b-r-r*, *Ferula Persica* Willd., *Sagapenum*. That it grew in Babylonia is shown by *MB.* 47-50, where *bariratu* šAR is included in the same section as *iaquqanu* šAR, *iarganu* šAR (= *arganu* ?), and *qinnat andi* šAR. The form ^{riq}*ba-ri-a-tum* occurs in a

¹ I have apparently made a mistake in my copy of *AM.* 33, 3, which amalgamates the two tablets K. 6828 and Rm. 116. *Ll.* 10-12 are *dup.* of *AM.* 99, 3, 5-9, and I see that I have put in *AM.* 33, 3, 11, "*ḥum-ḥa* (*hiatus*)-*ra-tú*". Obviously, the *ḥum-ḥa* of the one text replaces the [*šba-ri*]-*ra-tú* of the other, as in *AM.* 99, 3, 7, giving another instance of the variation *ḥum-ḥa* = *šambariratu*.

Larsa text (beginning of 2nd millennium, Charles F.-Jean, *Bab.* 1927, 28, 195).

Sagapenum is used in *SM.* for eyes, and as a plaster, and int. for coughs and as a purgative, sufficiently near to *MT.* Its use is allied to that of Galbanum (*cf.* *FH.*² 32).

In *AM.* 18, 5, r. 2 + 75, 1, iv, 2, we have: "When ditto, thou shalt bathe the sick place, anoint with oil, put ^{is}*arganu* and ^{šam}*bariratu* in water, heat in an oven, take them out, rub his feet therewith, anoint with oil, mix in pine- and fir-turpentine and ^{šam}*ankinuti*, anoint, and he shall recover." Now this use of ^{is}*arganu* and ^{šam}*bariratu* heated in an oven shows that both are soluble if boiled in water, and I found by experiment that this was the case with the *Sagapenum* and the specimen of the Balm of Gilead supplied me in Oxford.¹ The *Sagapenum* dissolved into a thin milky fluid; the Balm of Gilead did the same, but was definitely yellower in colour. As I have mentioned above in the symbolic ejection of the *Artemisia*, *Sagapenum*, and Balm of Gilead (if this be the *arganu*), in the case of the woman troubled with menorrhagia, a redder colour should have been expected.

(c) ^{is} (^{šam})*Arganu* occurs (as given above), along with ^{is} (^{šam})*sîhu* and ^{is} (^{šam})*bariratu*. It perhaps grew in Mesopotamia, as may be shown by *MB.* 47, *iarganu* šar.²; and (β) *AM.* 1, 2, 13: "When a man's head has *samānu* (itch, scab), thou shalt bray dust from the limestone threshold of an old house, . . . , -*su-ut*, and grows³ in the midst of ^{is}*arganu*, seed of arnoglosson, etc.

The word (and ^{šam}*riamargunu*) suggest the cognate Arabic root 'araja "to smell sweet", "exhale perfume", perhaps indicated by its synonym ^{šam}PI-PI-nu (*arganu* (?)) *ša sadî* (^{šam}PI-PI having the value ^{ria}*kanaktu*, p. 63). We ought to be able to identify ^{šam}*riamarganu* with one of the groups of resins, gums, or similar, but we have little on which to base an identification, except that it is a gum with a sweet smell used like *Artemisia* and *Sagapenum* in *MT.* ext., less commonly int., and almost certainly in fumigation.

I suggested in *AH.* 106 either *Amyris Gileadensis* or *A. opobalsamum*, which perhaps are not far from the correct drug. *PC.* iii, 1835, 345, says of *Balsamodendron Gileadense*, "though called a balsam, and denominated balsam of Mecca, balsam of Gilead, is not entitled, chemically, to rank as such, being an *oleo-resin*. It is of two kinds, that obtained by spontaneous exudations, and that which is obtained by boiling the branches. The former is so highly prized in the East, and so expensive, that it is never brought to Europe . . . Though formerly considered a cure for many diseases, it has now fallen into disuse. Any benefit which might be derived from it can be obtained from any of the finer turpentine." The same writer quotes Strabo (*b.* xvi) as saying that it possesses aromatic qualities, and cures headaches, catarrhs, and dimness of the eyes. Pliny (*NH.* xii,

¹ The same as the Balm of Mecca.

² This is included in the same group in this passage in *MB.* as *bariratum* šar, so that we must presume it to be equal to ^{ria}*arganu*: the Syr. *yorâdâ* (Löw, *Ar. Pfl.* 174), the Mishnaic "herb on the face of the water", is unlikely.

³ *GAL-bi*, paralleled by *i-ra-bu* (-û) in l. 18 of the same text "powder from *Lycium* which grows in his (its) *pîlîti*".

54) says of the opobalsamum (which is apparently the "Balm of Mecca", Bostock, *ib.*) that it is of extraordinary sweetness.

Other synonyms of these words are :

(1) ^{šam}*Margušu*, "a drug for cleaning teeth : without a meal clean his teeth," *Pl.* 23, K. 259, 10 : *KAR.* 203, i-iii, 15. For *head* (see ^{šam}*urnuqu*). *Fumigate*, †, *AM.* 101, 3, 18. ^{riq}*mar-gu-sum* is mentioned on a Larsa text (about the beginning of the second millennium, Charles F.-Jean, *Bab.* 1927-8; 195). It will be remembered that myrrh is used in many tooth-powders.

(2) ^{šam}*Urnu(g)qu*, equivalent to both ^{šam}*arganu* and ^{šam}*bariratu*, is used in *MT.* for *head* with pine-turpentine, ^{šam}*marguša*, †, *CT.* xxiii, 38, 26, *dup.* *TCP.* 33, and *KAR.* 202, iii, 44.

(3) ^{šam}*LI-PAR* (although given as *šihu* instead of *šihu* on a variant, Meissner, *MVAG.* 1913, 2, 17, 20) is properly *šihu*, not *šihu*, which suggests that it may have been erroneously included here by the similarity of sound.

(4) The "Couch of Ishtar" suggests almost a mythological connection with the origin of the word *Artemisia*, which (according to Pliny (*NH.* xxv, 36) was either from Artemisia, the wife of the king Mausolus, who adopted the plant known hitherto as *parthenis*, or that it came from the name of the goddess Artemis Ilithyia, because it was used in the diseases of women. In the explanatory text of plants published by Labat (*Comment. Assy. Babyl.* 130, l. 12) . . KI-NÀ ^aNINNI occurs with the explanation . . . [z] u (?) -ni (?) -u-tu ma-ai-al -tu ^aIštar.

To sum up: the three drugs (^{is})(^{šam})*sihu*, (^{is})(^{šam})(^{riq})*bariratu*, (^{is})(^{šam})(^{riq})*arganu* are very commonly used in a group together. *Sihi* is philologically correctly "absinthe"; curiously *samūseri*, the equivalent of the Syr. *šōšrā* absinthe, and meaning *lit.* "plant of the desert", an apt description of absinthe, is given only as equivalent of *margušu*, which = *bariratu* or *arganu*. The "great *margušu*", which in common speech is the gall-apple of the tamarisk, doubtless refers to the bitterness of the absinthe or of the *Sagapenum*. *Bariratu*, comparable to the Syr. *b-r-r*, *Ferula Persica* Willd., is the *Sagapenum*. *Arganu* is less easy, but as determined by ^{riq} will be a gum, and its root is comparable to the Arab. *'araja* "smell sweet", and it may well be the Balm of Gilead (Balm of Mecca).

^{riq}AN-BAR, *niqibtu*, probably *Euphorbia Antiquorum* L., or similar.

This occurs thus in *MT.* :

(1) *Simply*: *Ext.*: *Eyes* (?), †, [apply], *AM.* 14, 3, 2. *Ears*, †, apply, *AM.* 37, 2, r. 8. *Temples*, †, bind on, *AM.* 20, 1, 3, 5, 7, *dup.* *CT.* xxiii, 39, 15, 17, 19, and partly *KAR.* 188, 10, 12 : *AM.* 20, 1, 15, *dup.* 15, 2, 1 + *CT.* xxiii, 40, 28 (*AJS.* 1937, 14) : *AM.* 103, 1, 15. *Footsoles* pricking, †, [apply], *AM.* 75, 1, iv, 25 + 15, 3, r. 4. To ease *muscles of hands and feet*, †, bathe, *AM.* 98, 3, 13. *Poultice*, †, *AM.* 72, 2, 6 : 98, 3, 9. *Anoint*, †, *AM.* 52, 5, 13 : 92, 4, 4, 5 : 96, 4, 10 : 97, 4, 8, 14. *Hand of Ghost, eyes affected, etc.*, †, anoint in cedar-blood, *KAR.* 182, r. 20. On *neck*, †, put, *AM.* 28, 7, 5, *dup.* 23, 1, 16.

Enema : † ($\frac{1}{2}$ shekel of *niqibtu*), *AM.* 41, 1, iv, 11.

Fumigate : †, *AM.* 94, 2, 12 : 99, 3, 5. *Temples*, †, with *Veratrum*, *AM.* 20, 1, 13 : *KAR.* 182, 16.

Int.: Stoppage of saliva, †, [drink], *AM.* 31, 4, 17. Uncertain, drink, *AM.* 91, 5, 8.

Uncertain use: "retention of sick anus" (*hinqti* KU.GIG), †, *AM.* 40, 5, 18.

Quantity: (see *Enema*): $\frac{1}{2}$ qa, †, prob. *ext.* . . . , *AM.* 60, 3, 14.

(2) "Male and female": *Ext.*: Instructions to the physician in treating a patient, to keep various devils away, that he anoint himself with ^{ria}AN-BAR "male and female", in honey and *himetu*-ghee, *KAR.* 31, r. 21. Temples, †, hang on neck, *AM.* 4, 6, 6. Against ⁴LUGAL-ÜR-RA with IN-BUL + BUL-AN-NA, bind on (AŠ-su), *KAR.* 186, 25. [*Hand of Ghost*], †, anoint in cedar-blood, *AM.* 93, 1, 2. *Ghost*, †, presumably anoint, *KAR.* 56, 6.

Fumigate: *Ears*, †, *AM.* 33, 1, 29, *dup.* 35, 1, 5, and 38, 2, iv, 1. *Head*, †, prob. [*fumigate*] temples, *AM.* 2, 1, 15. *Ghost*, †, fumigate, *KAR.* 182, r. 11.

(3) "Oil (of (?)) *hîl* (gum) ¹ of ^{ria}AN-BAR": *Ears*, †, uncertain use, *AM.* 34, 1, cf. "oil of ^{ria}AN-BAR", *ABL.* 570, 14.

In *AH.* 141 I wrongly, I think, identified this gum as the *Liquidambar orientalis* Miller, on the grounds that it was a large, gum-producing tree from Anatolia, facts coinciding well enough with the evidence. But two passages in rituals are convincing that this is wrong, since it must be a drug with a definitely unpleasant smell. Of these two passages, *BBR.* No. 26, i, 18 ff. (and almost a repetition of ii, 1) is an atonement ritual (*takpirti*) for the King, which directs that after the "atonement" (in Col. ii this is a kid) has been put outside the door, and after various rites which "thou shalt perform", the *mašmašu*-priest is to be prepared for his share in the ritual. He is to crush ² ^{ria}AN-BAR, mix it with honey and *himetu*-ghee (Col. ii adds "oil") and anoint himself therewith, and put on red garments. After this the procedure apparently again devolves on the "thou" of the earlier part, who prepares and offers various oblations, including a censer of ^{ria}burašu and ^{šam}KUR-KUR (*Veratrum*) (according to Col. ii), and then again the *mašmašu* takes charge.

The first piece of evidence is offered by the ceremonial "red garment". Why is the stress laid on the red colour?

The answer is to be found, I think, in a passage in the *Utukki limnûti* (Tablet "B", *CT.* xvi, pl. 28, ll. 64 ff.), where a *mašmašu* is combating an *alû*-demon. He is to hold a raven and a hawk in either hand (both birds being intended by their nature to frighten away supernatural winged creatures), and then the text goes on: "With a red garment of terror I am clothed (against ?) thee, with a red dress of effulgence

¹ A preceding recipe, *l.* 3, *ib.*, shows IÁ ²ŠUR-MAN "oil of Cypress" which makes "oil of gum of ^{ria}AN-BAR" certain.

² I do not believe that Zimmern is right in *BBR.* 122 in referring *i-su-ak* to the Heb. *sūk* "anoint", however tempting it may appear. For one thing ^{ria}AN-BAR "male and female" is not, as far as is known, an oil, but a gum. Secondly, the words which follow "and with honey and *himetu*-ghee he shall mix, anoint himself" are definite. The ^{ria}AN-BAR is to be treated in some way, and then mixed with the anointing medium; and since all these gums harden after they have been collected, the probability is that *sāku* here comes from the same root as *siktu* "powder", *Lipû sāku* (*AM.* 8, 7, 4, and 23, 10, 6) will be fat of a consistency similar to that of a gum, which must be beaten or pounded. A series of 56 *zid* (powders) is called "a great *si-ku*" (*KAR.* 192, r. ii, 57).

(*namrirru*) (my) pure body I have clad (against ?) thee." It is paralleled by what is obviously the same ritual in *ABL.* 24, a letter from Marduk-šakin-šūmi, giving the actual ritual against this demon and AN-TA-ŠUB-BA : "The *mašmašu* says that *hula*, *pirhi* (caper), **baltu* (caper) are hung ('-i-la) on the *mešeti* of the door" (which corresponds to ll. 73-5 of the *Utukki*-text, giving *mešeti* as a variant for *hitti*) ; "the *mašmašu* shall wear red-garments and put on a red **šūr*." Here, the red garments are obviously intended to strike terror into the demon ; red was the colour of the Assyrian soldiery (*Nahum*, ii, 3), and it was the *coccus* (scarlet) which was the dye used for the cloaks of Roman generals (*NH.* xxii, 3). How far *Is.* ix, 5, can be added as evidence is uncertain : "For every battle of the warrior is with confused noise and garments rolled in blood." Equally, in magic, the colour red obviously represents blood, just as blue represents a swollen or discoloured muscle, and white and black appropriately the powers of good and evil, light and darkness (*DACG.* xxxix). The *mašmašu* is to threaten the demon with all the ideas of hostility connected with the blood-coloured military dress.

These clues—the blood-coloured dress, and the birds which frighten winged creatures away—must surely point to a similar intention in the use of the aromatic **iq*AN-BAR "male and female". It will not be a pleasant perfume, but definitely the opposite, this being certainly also indicated in *KAR.* 31 that demons, including the *alū* and the AN-TA-ŠUB-BA, shall not approach the *mašmašu* (*r.* 19-20) : "bray **iq*AN-BAR 'male and female', mix in honey and *himetu*-ghee : when thou wouldst approach the sick man, anoint thyself therewith, and approach the sick man ; nothing evil will come nigh thee."

**iq*AN-BAR "male and female" obviously must have an unpleasant smell, whether it be used in fumigation or as unguent.

The next point in evidence for the meaning of **iq*AN-BAR comes from the Tell-el-Amarna tablets (*TA.* No. 41, 43) where Šubbiluliuma sends "two great trees of *nikibtum*" as a gift to Ḫurria, king of Egypt. This points to a great size and a provenance in Anatolia and, since they were a royal gift, the probability is that they were not to be found in Africa. I had previously thought that as the *Liquidambar* is a handsome tree some 30-40 feet in height, forming forests in extreme S.W. Asia Minor, with its trunk providing *Styrax præparatus* (expectorant, stimulant, useful in bronchial affections and scabies (*FH.*² 275 : *P.* 1170), the *niqibtu* well coincided with it. Indeed, its very name **iq*AN-BAR was similar in sound to the Arab. 'anbar, *Liquidambar*.

Nevertheless, this will not meet the needs of the text which demands an unpleasant gum as the product of this tree. I noted in *AH.* that the Phœn. *νοῦκουβάρ* (Löw, *Ar. Pfl.* 193) is supposed to be the *τιθύμαλλος*, *Euphorbia*, and this would seem to correspond with the **iq*AN-BAR, *niqibtu*. It will be noticed that the Assyrian drug is rarely used internally, and that there are "male and female" kinds. *Diosc.* iv, 162, speaks of the male and female *tithymallos*, the former being *Characias*, *Euphorbia Characias*, and the latter *Myrsinites*, *E. mersinites*, both growing in S. Europe, which would coincide with the latitude of Anatolia.

E. Antiquorum L. is a tree growing to a height of 25 feet, often 3 feet in circumference. Its juice and bark are purgative, its stem is used for

gout, and its very acrid and irritant juice is used for rheumatism, toothache, and warts (*IMP.* 1130). Int. it is usually administered with purgatives and aromatics. In some parts of E. Bengal and Assam the tree is almost sacred, and is supposed to protect the gardens round which it is planted, and it safeguards, so it is thought, the inhabitants from snake bites (*CPI.* 530). The *E. Neriifolia* L. is a prickly, milky shrub used in ears, for warts, for rheumatism, and as a blistering agent, and also internally (*CPI.* 530 or *IMP.* 1130). The inspissated juice of *E. Nivulia* has been used as a diuretic (*WPI.* 204).

We have, therefore, considerable justification in seeing *Euphorbia* (probably *Antiquorum*) in the *nigibtu*, the root of which word is probably cognate with the Syr. *n'qabh* "to pierce"¹. One objection to the identification is that it is used in a text in which eyes are prescribed for, but it is so broken and uncertain that the text given is no serious evidence against it.

¹ [A syllabary published by A. Goetze in *JAOS.* 65, p. 225, l. 50, gives a 'Sumerian' equivalent *li-gi-id-ba*, which suggests that both this and the 'Akkadian' *nigibtu* are varied versions of a foreign word.]

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ṣalluru, 303, 305 f., "medlar."
ṣamaš, 207 f., "pellitory."
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ṣamaššammu, 101, 205, "sesame."
ṣambaliltu, 8, 64 ff., 199.
ṣammu, *ṣamu*, 8, 16, 18, et passim, "plant, grass," etc. In addition to the normal determinative *ṣam*, *ṣam(m)u/i*, *ṣam*, occur in the following compound names:—
ṣam/i/u aḫḫazu, 235.
ṣam/i/u amurriqanu, 235.
ṣam/i/u arrati lami, 227, "drug for laying a curse."
ṣam/i/u AŠ, 352.
ṣam/i/u aši, 64, 131, 139, 141, 146, 152 f., 162 ff., 185, 204, 364, "appetizer, anodyne."
ṣam/i/u balati, 8.
ṣam/i/u balilti, 65.
ṣam/i/u bartu, 162 ff.
ṣam/i/u BIL libbi, 235 f.
ṣam/i/u bir-bir-ru, 275.
ṣam/i/u dadā, 180, 184, 186, "thorny carob."
ṣam/i/u dāmi parasi, 9.
ṣam/i/u DIR, v. *sāmu (DIR)*.
ṣam/i/u eqli, 117 f., 269, 271.
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ṣam/i/u erimu, 144, "drug for a blister."
ṣam/i/u eše, 269.
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ṣam/i/u kidi, 4, 9, 17, "steppe."
ṣam/i/u kima marti, 169.
ṣam/i/u kirī, 8.
ṣam/i/u kirib tamtim, 8, 238.
ṣam/i/u kipni, 163.
ṣam/i/u ki-ur(!)-ni, 162.
ṣam/i/u ¹³KU(elpāte), 9 f.
ṣam/i/u kuraštu, 144 f., "drug for ring-worm."
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ṣam/i/u la-maš-ti, 24 f.
ṣam/i/u lamšate, 70.
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šam/i/u martu, 25 f., 129, 248, "drug for gall."
šam/i/u matqu, 120, 126, "sweet plant."
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šam/i/u misir libbi, 181, 189 f., 215 f.
šam/i/u nāri, 7 f., 18, 23.
šam/i/u ni (?), 11.
šam/i/u nisig "dalti", 129 f., "plant for the adornment (?) of a door."
šam/i/u nissati, 8, 320, "drug for grief."
šam/i/u pan taḫše, 169, 172.
šam/i/u parkadi, 144 f.
šam/i/u pa-rit-ti, 25.
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šam/i/u sāmi (GUG), 9.
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šam/i/u simnati nassahi, 9.
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šam/i/u šēri, 4, 15 f.
šam/i/u šibit libbi, 189.
šam/i/u širpi, 269, 275, "plant for dyeing."
šam/i/u šadi, 8, 151, 153, 180, 184.
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šam/i/u šurdē, 235.
šam/i/u takzati, 77.
šam/i/u tamtu rapaštu, 8.
šam/i/u tarbu, 144 f., "drug for a swelling."
šam/i/u te-lil-li, 25.
šam/i/u tur-ti, 25.
šam/i/u TUV, 77, "drug for the bowels."
šam/i/u tulte, 65.
šam/i/u ugnati, 171.
šam/i/u uzna⁴, 151, "drug for the ears."
šam/i/u ZI-ah (= nasah) SI(marti), 235.
šam/i/u ZID, 269, 271 ff.
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še'u, 56, 96 f. (and often in compounds).
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(ŠE)ār-zik, 95, 108, "millet."
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šibbarratu šadē, 75 f., "rue."
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